Report on the activities of ElCom 2015

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Carlo Schmid-Sutter
President of ElCom

In the past few years, despite time-consuming and costly legal proceedings and court rulings that in some cases have been difficult to implement, a certain degree of legal and investment security has set in in a variety of segments of the electricity market since its liberalisation in 2008. However, there is still one central aspect that has yet to be clarified: energy tariffs. As before, a legally binding decision still has to be taken regarding the methodology for calculating the applicable energy tariff for end users with basic supply. A ruling on this issue is still pending at the Federal Supreme Court. At the conclusion of legal proceedings that lasted several years, the Federal Administrative Court referred the matter back to ElCom citing requirements that are practically impossible for the latter to meet so, as a consequence, ElCom suspended all proceedings relating to the matter of energy tariffs. This is an extremely unsatisfactory situation for end consumers who are unable to freely choose their supplier, since, according to the applicable legislation, they have a right to expect the regulator to ensure that their tariffs are reasonable as defined by law. Here we can only hope that the Federal Supreme Court will provide clarity as soon as possible.

Our national legislation is unable to keep pace with the rapidly changing legal framework conditions governing the structure of the electricity market in Europe (often referred to as "market design"). For instance, network codes that entered into force in 2015 have significant consequences for Swiss network operators, producers and other market players who are active in the European environment. This development is one of the reasons why, in its capacity as supervisory authority, ElCom actively participated in the debate on the planned reform of legislation in the energy sector. Last year, ElCom proposed a variety of amendments to acts and ordinances, notably in those areas in which the liberalisation of the market represented a threat to the country's supply security. We want to avoid a situation in which the enforcement of laws and ordinances could threaten the national supply.

In ElCom's understanding, supply security is the central element of Switzerland's entire energy policy. To date, the results of our analyses of the security of the country's electricity supply have been essentially positive, and they confirm that Switzerland's electricity supply fundamentally meets the highest European standards. Nonetheless, during the preparation of the new edition of the report on electricity supply security we were taken by surprise when, at the end of 2015, Swissgrid issued warnings of a threatening electricity supply shortage in winter 2015/16. Alongside short-term measures aimed at stabilising the situation, which brought about the desired effects and succeeded in temporarily eliminating the threat of a shortage, medium-term and longer-term solutions also need to be found. It will be necessary to hold more intensive discussions regarding the distribution of roles and the legal responsibilities on the part of the various players involved. In accordance with the Federal Electricity Supply Act, ElCom is required to observe and monitor the development of the electricity markets in order to ensure a safe and affordable electricity supply in all regions of the country and thus, above all, to secure compliance with the relevant legal provisions. The networks have to be safe, reliable and efficient, and end consumers are entitled to receive the desired quantity of electricity at all times, with the requisite level of quality and at affordable prices. In view of the fact that, in the current context, it is not always easy to differentiate between monopoly and market, ElCom's principal duty is to maintain an overview of the security of the overall system. This includes drawing the attention of the involved players to

their responsibilities under the law, evaluating the measures to be taken from the point of view of their conformity with the applicable legal provisions, as well as their proportionality and economic viability, and, where necessary, imposing measures in its capacity as superior authority. Fortunately, such measures were not required in the year under review. It goes without saying that ElCom will continue to keep a close eye on the situation in 2016 – on the one hand by monitoring the situation regarding the 2016/17 winter, but also by intensifying its long-term monitoring activities.

As the offspring of a rejected referendum on an initial liberalisation proposal, the Electricity Supply Act is in many ways hesitant when it comes to market introduction. One example of this is metering: In 2015, ElCom issued a ruling on metering services in which it found that network operators do not have exclusive control of these services. However, the legislator considers metering as a whole, and thus metering services as an integral part of network operation. This means that, in the electricity supply legislation, metering is regulated together with the network. The existing electricity supply legislation is not oriented on competition in the area of metering and does not specify a contractual obligation on the part of network operators in connection with the provision of metering services. This means that producers do not have a right to choose their metering service provider, even though competition in this area would be technically feasible and economically desirable – and that it already exists to some extent. This situation is unsatisfactory and needs to be rectified in the forthcoming revision of the electricity market legislation.

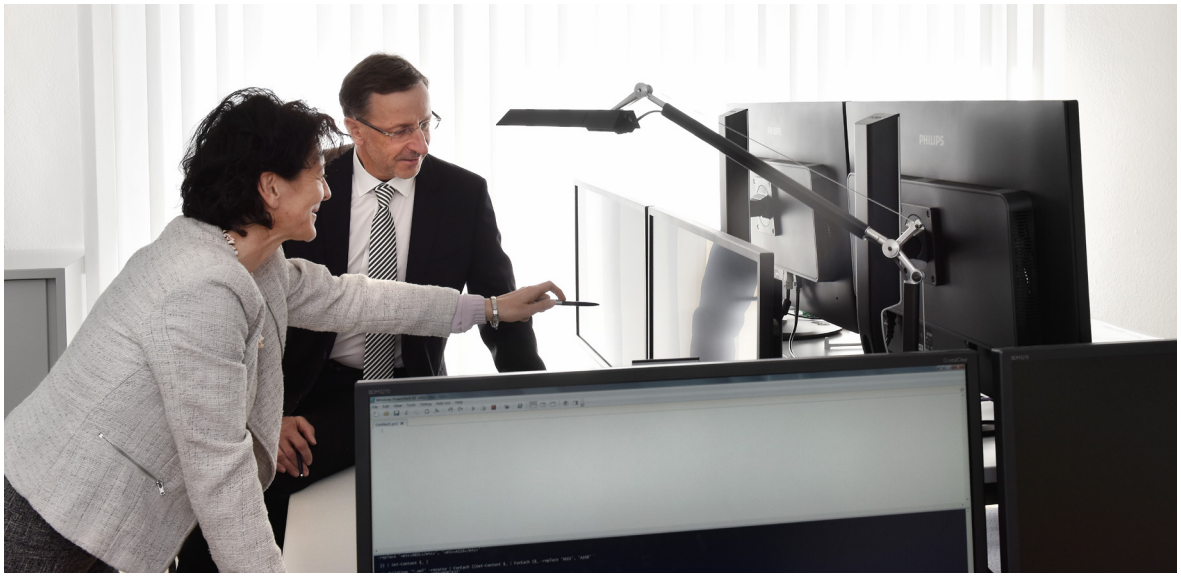
Coordinating its activities with foreign regulatory authorities is one of ElCom's most important activities. Since 2012, ElCom has possessed observer status in the Council of European Energy Regulators (CEER). In another body, the European Agency for the Cooperation of Energy Regulators (ACER), international cooperation was intensified as of the end of 2015 through the signature of a memorandum of understanding. As an observer in the ACER Electricity Working Group, ElCom is able to directly monitor developments in the electricity sector and submit its own ideas. For ElCom, the various working groups within ACER and CEER are of great value when it comes to cross-border coordination tasks and as long as Switzerland belongs to the close-meshed European network, this kind of cooperation is essential for material reasons.

In the area of market supervision, ElCom put its reporting platform into operation in 2015. Thus, it now receives wholesale data from those market players that are subject to the reporting obligation. An IT tool that is currently being introduced will analyse these large volumes of data automatically. The fundamental data can be viewed on the transparency platform of ENTSO-E, but, because the analyses require both Swiss data and the data of the neighbouring countries, the data concerned have also been imported into ElCom's systems since the end of 2015. The next step with regard to data reporting concerns the reporting of non-standardised agreements, which will be introduced on 7 April 2016.

With respect to the tariffs of the supply networks, the Commission has brought its work on the Sunshine Regulation to a stage in which it will shortly be possible to conclude the two-year test phase. The Commission will take a decision in summer 2016 concerning the formal introduction of this regulation.

I hope you will find this report on the activities of ElCom interesting and informative.

2 Supervision of the wholesale electricity market



Ms. Cornelia Kawann, Head of Market Monitoring, and Mr. Renato Tami, Head of the Technical Secretariat, in the Secure Room at Elcom.

2.1 Focus on supervision of the wholesale electricity trading

One of ElCom's main focuses in 2015 was the development of its supervision of wholesale electricity trading: It successfully introduced its market supervision measures and thus complied with the requirement specified in the Federal Electricity Supply Ordinance. In this interview, Renato Tami, head of the Technical Secretariat, outlines the activities, background and challenges relating to the development of ElCom's market supervision.

We are currently in ElCom's "Secure User" room. Why does ElCom need a security room?

Since the end of 2015, ElCom has been receiving transaction data from electricity wholesalers. These figures are highly confidential, and the Electricity Supply Ordinance stipulates that they must be protected against unauthorised access through the use of organisational and technical measures. A special room in which data can be processed securely was one of the measures ElCom introduced for this purpose. Access to the Secure User room is restricted and special rules of behaviour have been defined.

ElCom has introduced the supervision of wholesale electricity trading. What is the purpose of this supervision?

Smoothly functioning wholesale electricity trading and its effective supervision are essential for ensuring that prices are fair and transparent and for securing the supply of electricity in Switzerland. Both of these issues are of central importance for consumers. With the introduction of the REMIT regulation, wholesale electricity trading in the EU is now much more effectively monitored than before. This move also affects Swiss market participants, who now have to submit data to the EU. Article 26a of the Electricity Supply Ordinance ensures that, in its capacity as supervisory authority, ElCom receives the same data that Swiss market participants report to the EU.

What were ElCom's main activities in 2015 relating to market supervision?
Most of the activities in 2015 took the form of preparatory work. ElCom introduced a system for registering market participants. Together with the Federal Office for Information Technology, Systems and Telecommunication (FOITT) we created the technological prerequisites for receiving major quantities of fundamental and transaction data.

Which challenges did ElCom have to overcome in order to accomplish this?
The main challenge concerned the development of the required infrastructure for checking, receiving and storing the data. In this connection, ElCom had to pay a great deal of attention to the introduction of the REMIT regulation in the EU and its available data which made the planning of our IT project considerably more difficult. We then had to link the registered reporting mechanisms and the European Network of Transmission System Operators for Electricity (ENTSO-E) to our infrastructure so that it would be possible for the fundamental and transaction data to be transmitted to us.

What do you find particularly encouraging after this first year of market supervision?
To put it in a nutshell, we succeeded in developing a functional, secure and client-friendly system within a short period of time. The process of registering market participants ran smoothly. Security aspects were the priority, and we set out to ensure that additional costs for participants associated with the new reporting requirement were kept as low as possible. We initiated deliveries of data at almost the same time as the EU, even though the IT conditions posed a variety of problems. ElCom actively fulfilled its role as supervisory authority, periodically provided information in the form of newsletters, posted comprehensive material on its website and organised a workshop for the involved market participants.

What are ElCom's plans with respect to market supervision in the next few years?
After the necessary background work has been concluded, especially in the area of IT, the next step will be to push ahead with, and intensify, market analyses. For this purpose, ElCom is purchasing market monitoring software that automatically carries out analyses, because it will not be possible to analyse the enormous quantities of data manually. In April 2016 the reporting obligations for non-standard transactions enter into effect. We then intend to use the available resources for carrying out more detailed market analyses.

> *"We succeeded in developing a functional, secure and client-friendly system within a short period of time"*
>
> *Renato Tami, Head of the Technical Secretariat*

2.2 Market transparency in wholesale electricity trading

Article 26a of the Federal Electricity Supply Ordinance stipulates that ElCom is to receive the same data from Swiss market participants that market participants in Switzerland are required to submit to the EU under the REMIT regulation (EU Regulation No. 1227/2011 governing wholesale energy market integrity and transparency). This means that the authorities in Switzerland receive at least the same data as the authorities in the EU. Article 26a of the Federal Electricity Supply Ordinance also serves to secure the integrity and transparency of wholesale electricity trading, which are prerequisites for smoothly functioning trading and also help prevent market manipulation and insider trading.

ElCom created its own market monitoring section in 2014, which is responsible for supervising wholesale electricity trading and implementing Article 26a of the Electricity Supply Ordinance. In 2015, ElCom laid the foundations for supervising the wholesale electricity market. Together with the Federal Office for Information Technology, Systems and Telecommunication (FOITT), it created the technological prerequisites for this purpose and developed an electronic system for the secure processing of data. This enabled ElCom to receive and partially analyse the data to be supplied under Article 26a of the Federal Electricity Supply Ordinance (initially comprising standard fundamental and transaction data).

To permit comprehensive data analyses, ElCom is to use a new market monitoring software that will automatically and systematically analyse incoming data. The acquisition of this software was effected via a public tendering procedure (based on the WTO guidelines), and in August 2015 the contract was awarded to a Swedish company.
ElCom's market supervision section maintains contacts with Swiss market participants, as well as with other domestic and foreign authorities, energy exchanges and data suppliers, in particular RRMs (registered reporting mechanisms). On the domestic front, ElCom liaises with bodies such as the Federal Financial Market Supervisory Authority (FINMA) and the Federal Competition Commission (WEKO). Outside the country, ElCom is involved in a CEER market monitoring task force, takes part at round table discussions on REMIT that are organised by ACER and maintains contacts with bodies in neighbouring states that are involved in market supervision.

Despite frequent liaising, cooperation between Switzerland and the EU is becoming increasingly difficult. A bilateral electricity agreement could ease this situation. The fact that Switzerland does not yet have a legal basis for comprehensive data collection compounds the difficulty. Market manipulation and insider trading in the area of wholesale electricity trading are neither prohibited nor punishable by law, in contrast with conventional stock market trading in Switzerland or energy trading in the EU. In order to rectify this situation, the necessary legal parameters need to be created, for which the preparations have been initiated as part of the revision of the Federal Electricity Supply Act.

2.3 Market Monitoring section; facts and figures for 2015

In 2015, two employees were added to the Market Monitoring section, bringing the total to five. These two new staff members are responsible for infrastructure development and operations. The personnel in the Market Monitoring section have expertise in the areas of energy, market analysis and information technology, and the section is headed by Cornelia Kawann.

The process of reporting to ElCom was initiated in 2015, and by the end of the year a total of 2'356'679 messages had been entered in the database. Around 30 percent of the messages concerned transactions, while the remainder related to orders to trade. Approximately 70 percent of the transactions recorded during this period concerned spot trading, while the remainder concerned financial transactions. As of the end of 2015, 35 market participants had registered with ElCom, and five RRMs (registered reporting mechanisms) were also approved as data suppliers.

3 Supply security

The lake of Grimsel in the Bernese Oberland: the water levels of the Swiss damms were unusually low last winter.

3.1 Introduction

Under Article 22, paragraphs 3 and 4 of the Federal Electricity Supply Act, ElCom is responsible for monitoring supply security. If there are signs of a significant threat to the domestic supply in the medium or long term, Article 9 of the above Act stipulates that ElCom has to propose measures to the Federal Council. These measures may take the form of efficient electricity use, the procurement of electricity or strengthening and expanding the electricity networks. Supply security is assured if at all times the desired quantity of energy is available at the necessary level of quality and at reasonable tariffs in the entire electricity network.

ElCom monitors supply security in two ways: it collects data relating to quality of supply, network availability and frequency of interruptions, and publishes these figures annually. It also keeps an eye on the available import capacity and the development of available cross-border capacities (cf. section 3.2).

Supply security also depends on production capacity and the availability of electricity, and in view of this, ElCom also monitors foreign markets and the activities of foreign regulators with respect to capacity mechanisms (cf. section 3.3).

Adequate production capacities and sufficiently dimensioned transmission and distribution networks cannot guarantee the security of supply on their own. Because electricity cannot be stored in the network, the quantity of energy fed into the grid has to always be the same as the quantity that is taken out of it. This equilibrium is maintained through the use of balance energy (cf. section 3.4).

In winter 2015/16, Switzerland's supply security came under pressure for a variety of reasons (cf. section 3.5). ElCom publishes a detailed report on Switzerland's supply security every two years. The next report is due to be released in 2016.

3.2 Quality of supply

3.2.1 Network availability

The quality of supply is to some extent defined by the degree of network availability. In Switzerland, the development of network availability has been closely monitored since 2010. For this purpose, ElCom uses the two internationally recognised indices, SAIDI (System Average Interruption Duration Index) and SAIFI (System Average Interruption Frequency Index). SAIDI quantifies the average duration of interruptions per end consumer, while SAIFI indicates the average frequency of interruptions per end consumer. Figures concerning all unscheduled interruptions that last longer than three minutes and occur as the result of natural phenomena, human error, operational problems or external influences, flow into the calculations for both indices.

For the purpose of monitoring network availability, ElCom evaluates interruptions to supply from the 89 largest Swiss network operators, who account for 88 percent of the country's energy turnover via their networks and supply 80 percent of the energy directly to their end users.

In 2014, the 89 largest network operators experienced a total of 5140 unscheduled interruptions (cf. Table 1), which represents a decrease by more than 1000 versus 2013. However, the number of interruptions on its own is not sufficient to make reliable conclusions regarding network availability. It is only when this figure is combined with the duration of interruptions and the number of end users that are affected that such an evaluation can be made.

	2010	2011	2012	2013	2014[1]	Unit
Interruptions	6080	6000	7280	6330	5140	No. of unscheduled interruptions
SAIDI	14	16	22	15	13	Minutes per end consumer
SAIFI	0,28	0,28	0,34	0,28	0,22	Interruptions per end consumer

Table 1: Development of supply quality in Switzerland

In 2014, the average duration of unscheduled interruptions per end consumer was 13 minutes. This figure represents a nationwide improvement by 2 minutes versus the previous year. The average frequency of unscheduled interruptions per end consumer in 2014 was 0,22, which means that it has decreased in comparison to the previous year. This means that network availability was at its highest in 2014 since data collection was initiated in 2010. The higher SAIDI and SAIFI figures in 2012 were primarily attributable to extraordinary natural phenomena (storms and snowfall).

Switzerland's quality of supply is high in comparison with that of its neighbouring countries. According to official figures released by the CEER, the average duration of unscheduled interruptions per end consumer in Germany, Austria, France and Italy was between 12 and 50 minutes in 2014.

1 The data relating to supply security in 2015 will be published in June 2016 on ElCom's website.

3.2.2 Import capacity

Alongside network availability, the available import capacity is also a key factor for Switzerland's electricity supply security. For this reason, ElCom also monitors the availability of cross-border capacities (referred to as net transfer capacity, or NTC). NTC indicates the level of cross-border transport capacity that is available in neighbouring countries without infringing against the applicable safety standards. Swissgrid defines the level for the four Swiss borders together with the operators of the neighbouring transmission networks. The proportion of the import capacity of the Principality of Liechtenstein, which is part of the Swiss control zone, is included in the calculation of the import capacity from Austria. Table 2 presents an overview of the trend in available import capacities.

NTC (MW)	2011	2012	2013	2014	2015
France	3116	3109	3060	3093	3073
Germany	1087	895	965	1094	1373
Austria	312	456	512	612	779
Italy	1721	1724	1726	1722	1720

Table 2: Trend in Switzerland's import capacity (NTC), 2011 to 2015

Because 90 percent of the exchange of energy with the neighbouring countries takes place via the 380 kV network, it is primarily the available capacity of the coupling transformers (380/220 kV) that determines the maximum possible level of imports. In the period from 2011 to 2015, the development of the import capacities at the national borders was very stable. The increases in import capacities in 2014 and 2015 were partly attributable to the relocation/construction of a 380/220 kV transformer (Bassecourt/Bickigen), which physically expanded capacity, and partly to the fact that Swissgrid was able to optimise import capacity at the German and Austrian borders in winter 2015 thanks to new planning and forecasting systems.

In view of the high transit flows through Switzerland (from north to south), the available export capacity to Italy is also an important factor for Switzerland's supply security. The extent of this export capacity has a significant influence on the allocation of import capacity at the borders with France, Germany and Austria. In order to maintain network stability in Italy, the Italian transmission network operator, TERNA, imposed capacity reductions more frequently in the past few years (cf. Table 3).

NTC (MW)	2011	2012	2013	2014	2015
Italy	3050	2826	2767	2557	2948

Table 3: Trend in Switzerland's export capacity (NTC) to Italy

As a consequence of the withdrawal from the use of nuclear energy and the planned increase in the use of renewable energy in the framework of the "energy turnaround", power plant capacities with a greatly fluctuating level of feed-in will play a central role in the country's future electricity supply. It has to be assumed that electricity imports/exports will gain in importance due to the fluctuating levels of feed-in from production from renewable energy sources. In order to guarantee the security of the electricity supply over the medium to long term, it will be essential to maintain a high volume of both the import capacity and the capacity for transforming energy from the higher to the lower network levels and, where necessary, to expand these capacities.

3.3 Capacity mechanisms

3.3.1 Introduction

The facilities for the production of electricity in central and western Europe are undergoing a radical restructuring process. The importance of conventional (in particular nuclear) power plants, is on the decline, while an ever increasing number of facilities for the production of electricity from renewable energy are being constructed. This process is also being supported through official promotion programmes. Instead of an initially feared electricity supply shortage, a considerable surplus has been produced on the European electricity market in the past few years, despite the decommissioning of thermal power plants. This trend has been supported by stagnating demand. The surplus supply, coupled with lower fuel costs and declining prices for CO_2 certificates, has given rise to a long-term fall in prices on the wholesale electricity markets. On the Swiss electricity exchange, SwissIX, it now is only possible to generate around half the yield per kWh compared with the price level that was in place at the end of the last century.

Under the current conditions, many power plants are no longer able to cover their full costs. As the production of electricity from renewable sources depends on the sun and wind conditions, it is subject to major fluctuations, and this means that conventional power plants need to remain at least partially in operation in order to meet demand during peak periods.

In order to be able to secure the economic viability of these power plants in the future, two concepts are currently being examined: the first would be to allow market forces to run their course, so that in periods of short supply, electricity prices would, under certain circumstances, have to be increased by up to four times the average level. This solution would also enable conventional power plants to finance their full costs even though their annual operating hours would be reduced. The second option would be for the government to no longer allow free price peaks, which would be tantamount to imposing a limit on electricity prices. At the same time, however, it would secure the provision of sufficient capacities with the aid of capacity mechanisms.

3.3.2 Developments within the EU

The introduction of such capacity mechanisms is planned or has already been implemented in many European countries, especially within the EU (cf. Figure 1). A variety of options and instruments are conceivable for this purpose. One option is that a central body – for example, the national network operator – procures the required production capacities from the power plant operators by means of an auction procedure. This mechanism, which is referred to as a centralised capacity market, is being applied in Italy. The opposite of this is what is referred to as a decentralised capacity market: Here, instead of a central body, each supplier is obliged to procure the necessary capacities itself to ensure a secure electricity supply. This mechanism is applied in France. A third option relies on the concept of capacity payments. Here, the purchase of the offered capacity is guaranteed at a specified fixed price. Finally, there is the option of a capacity reserve, which is the one favoured in Germany. In this case, a capacity and a climate segment (brown coal blocks) are procured together on a contractual basis. Contrary to the other cited mechanisms, however, the power plants participating in these segments can no longer produce electricity for the standard market.

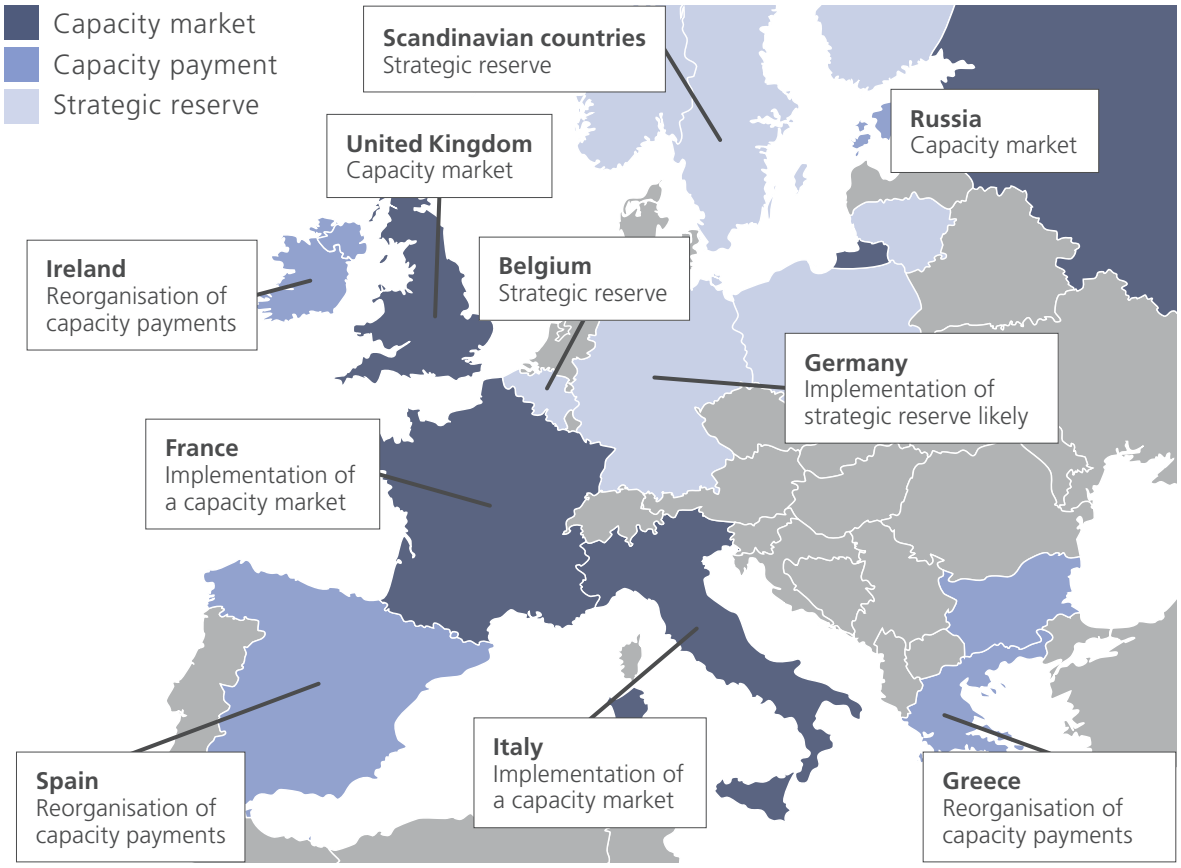


Figure 1: Overview of the present-day situation with regard to the application of capacity mechanisms in Europe (according to FTI.LC Energy)

3.3.3 Assessment of the situation in Switzerland

At the present time, the available import options and existing power plant capacities appear to be sufficient for ensuring supply security in Switzerland. Despite the low market prices, there are no grounds for assuming that Swiss power plants could cease production due to insufficient viability. But in view of the current market conditions there is also little likelihood that a large number of new power plants will be constructed without government support.

ElCom is confident that the electricity market is able to provide the necessary investment impulses itself, without the need for the government to impose maximum tariffs. In the event of a shortage of supply, rising electricity prices on the wholesale markets should provide the necessary signals for the construction of new power plants. In view of this, ElCom is not advocating the introduction of a capacity market in Switzerland. However, the possibility cannot be ruled out that capacity markets in other European countries could give rise to lower prices on the Swiss electricity market. This would place Swiss electricity producers at a disadvantage versus foreign suppliers as long as Swiss power plant operators are unable to bid on the capacity markets in France, Italy, etc. In order to maintain a situation of fair competition, in meetings of European committees and organisations ElCom always emphasises the importance of equal treatment for all competitors.

3.4 System services

In order to guarantee supply security, sufficient capacities have to be available for the production of electricity, and there have to be adequately dimensioned transmission and distribution networks for supplying energy to end consumers. Because it is not possible to store electricity in the network, the quantity of energy fed into the grid has to always be the same as the quantity that is taken out of it. Despite high-quality production and consumption forecasts by energy suppliers, precise planning is not possible. This means that even minor deviations from the targeted quantities have to be continually offset.

As a rule, this balancing procedure is carried out by adjusting the production of electricity to the current level of consumption. This constant balancing of production and consumption calls for power plants whose production can be efficiently regulated. The reserve energy provided by these power plants is purchased in a market-based procedure, and the associated costs have to be passed on to end consumers via the system services tariff. This tariff is used for other services that are required for the safe operation of the network, though reserve energy represents the most important segment in financial terms.

Figure 2 shows the price trend of secondary reserve energy for the 20 most expensive megawatts. This energy is required in order to compensate any imbalances in the network within a few minutes. Due to the broad variety of influencing factors, the price is usually subject to considerable fluctuations and the sharp price increase that occurs each year in Spring is noteworthy. In Switzerland, most of the reserve energy is supplied from storage power plants, but due to a lack of nearby streams and rivers, the water levels in the reservoirs often fall sharply during the winter, and this results in a supply shortage and thus in increased prices for reserve energy. The situation only improves after the annual thaw sets in during the spring.

Due to the harsh and prolonged winter in 2013, the price increase was unusually high even for that time of year. However, a comparison over a period of several years indicates a downward long-term price for reserve energy. This is attributable to several factors. For example, power plant operators have taken measures aimed at increasing the supply of reserve energy. Also, instead of regulating the supply via production, it is possible for certain facilities that consume large quantities of electricity (e.g. cold storage depots, heat pumps) to temporarily reduce their consumption in order to help achieve the balance between supply and demand. Another approach can be found in the development of international cooperation. Working together with neighbouring countries opens up additional savings potentials in the area of system services.

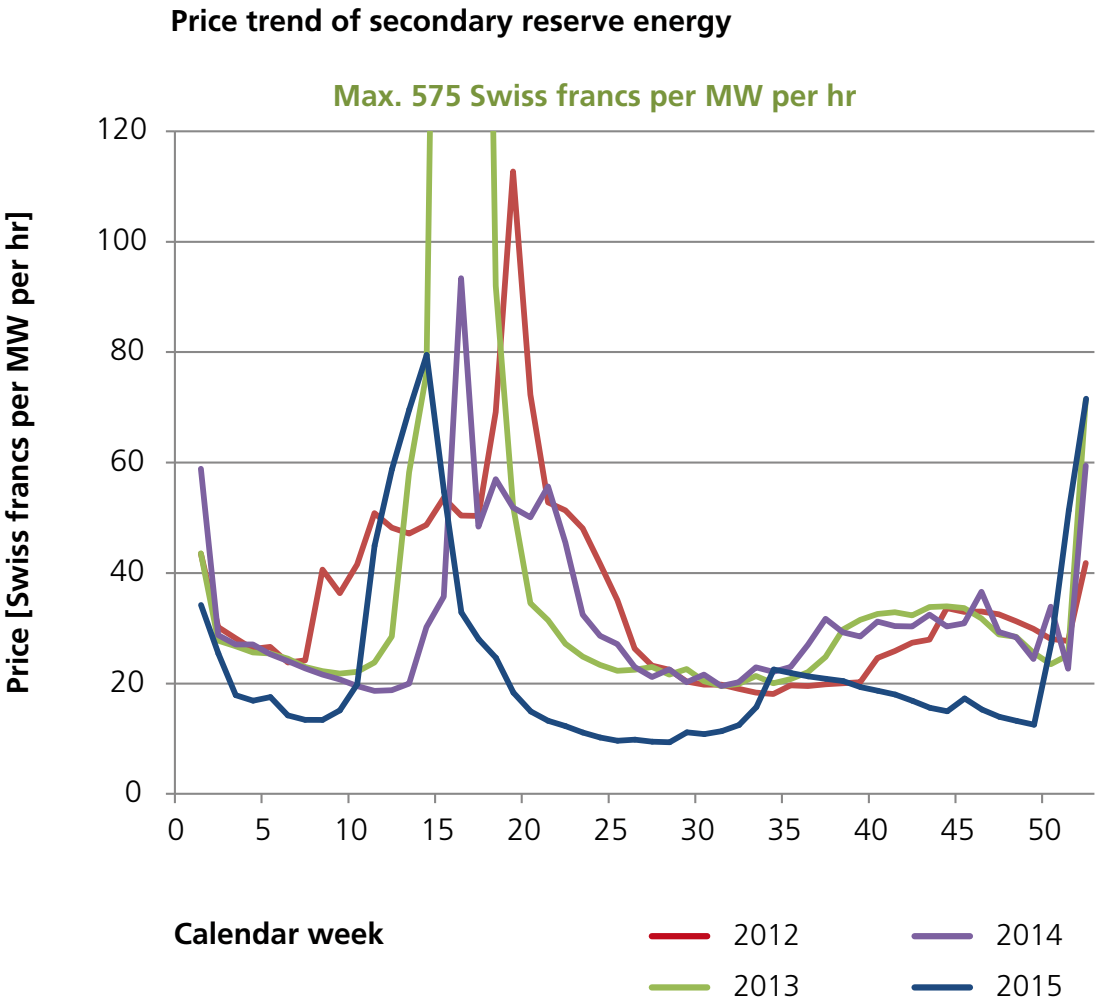


Figure 2: Price trend of secondary reserve energy for the most expensive 20 megawatts

3.5 Supply situation in winter 2015/16

On 2 December 2015, Swissgrid issued a press release warning of a difficult situation for energy supply and the electricity grid during the winter of 2015/16. This situation was attributable to several developments: since the Beznau 1 and 2 nuclear power plants were not available, a large proportion of base-load energy would be missing from the 220 kV network. In addition, electricity production from run-of-river hydropower plants was lower than usual because the water levels in the rivers were down due to the dry summer and autumn. On top of this, as a consequence of high interim electricity prices on the spot markets, a great deal of water in the reservoirs was already utilised earlier than usual for electricity production, and the average levels in the reservoirs were therefore below the long-term average for mid-December. Another problem was that the existing load flows limited the 380/220 kV transformer capacity to such an extent at times that it was not possible to transform sufficient imported energy for its supply to Switzerland's 220 kV and lower level distribution networks. If the power plant operators had offset this deficit by increasing production from the storage power plants, the water level in the reservoirs would have fallen even more rapidly. In other words, there would have been supply shortages towards the end of the winter (February to April 2016).

The uncertain supply situation in winter 2015/16 was thus brought about by energy-related difficulties (lack of production on the 200 kV network, too little water in the reservoirs), as well as problems relating to the network (limited transformer capacity). With the entry into force of the Federal Electricity Supply Act, the operation of the grid was separated from energy production, trading and distribution. As a consequence, the responsibilities for supply security were distributed among a variety of players with different duties.

Under the Federal Energy Act, the energy industry bears responsibility for the country's energy supply. As operator of the transmission network, Swissgrid is responsible for the non-discriminatory, reliable and efficient operation of the national grid. It is also responsible for balance management and the provision of system services, including reserve energy, as well as for ordering the necessary measures in the event of a threat to the stability of the operation of the grid. Thus, above all it is the network operators and the energy industry that are responsible for supplying energy to end consumers.

ElCom's main duties are to monitor compliance with the Federal Electricity Supply Act, keep a close eye on developments on the electricity markets in order to maintain a safe and affordable electricity supply in all regions of the country and, in accordance with Article 9 of the above Act, to propose measures to the Federal Council in the event of a threat to medium- or long-term supply security. The Federal Office for National Economic Supply (FONES) is responsible for eliminating severe shortages that can no longer be dealt with through the implementation of economic measures. Table 4 presents a summary of the various players and their main duties as specified in the Federal Energy Act, Federal Electricity Supply Act, Federal Electricity Supply Ordinance, Federal Hydropower Act and the Federal National Economic Supply Act.

Entity	Legal basis	Duties/powers	Area
Swissgrid	Article 20, paragraph 1, Electricity Supply Act	Responsible for non-discriminatory, reliable, efficient operation of the transmission network and for specifying cross-border transmission capacity.	Grid
Swissgrid	Article 20, paragraph 2b, Electricity Supply Act	Responsible for balance management and for providing other system services, including reserve energy.	Grid/energy
Swissgrid	Article 20, paragraph 2c, Electricity Supply Act	Responsible for ordering the necessary measures in the event of a threat to stable grid operation and for regulating details with network operators, power plant operators and other involved entities.	Grid
Swissgrid	Article 20, paragraph 4, Electricity Supply Act	May petition ElCom to order expropriation on a case-by-case basis to enable it to perform its duties.	Grid
Swissgrid	Article 5, paragraph 4, Electricity Supply Ordinance	In the event of a threat to stable grid operation, it is empowered to take or impose all measures that are required in order to secure the operation of the grid. If its instructions are not complied with, it is empowered to order alternative measures at the cost of the involved entity.	Grid
Swissgrid	Article 15a, paragraph 2, Electricity Supply Act	Specifies the tariffs for balance energy so that incentives are created to balance the supply and in order to prevent misuse.	Energy
Energy industry	Article 4, paragraph 2, Energy Act	The energy industry is responsible for the country's energy supply.	Energy
Network operators	Article 6, paragraph 1, Electricity Supply Act	Responsible for taking the necessary measures to ensure that end consumers receive the desired quantity of electricity.	Energy
ElCom	Article 22, paragraph 1, Electricity Supply Act	Takes decisions and issues rulings that are required for the implementation and enforcement of the applicable legislation.	Grid/energy
ElCom	Article 22, paragraph 3, Electricity Supply Act	Responsible for monitoring and supervising developments on the electricity markets.	Grid/energy
ElCom	Article 22, paragraph 4, Electricity Supply Act	Responsible for monitoring and supervising medium- to long-term supply security and for proposing measures in accordance with Article 9.	Grid/energy
DETEC/SFOE	Article 8, Hydropower Act	May introduce a licensing requirement for the export of electricity produced from bodies of water.	Energy
FONES	Article 28, Economic Supply Act	Where necessary, the Federal Council may impose regulations governing use until a severe supply shortage has been eliminated (steering of supply and demand).	Energy

Table 4: Entities and their responsibilities in accordance with the relevant legislation

For ElCom, the focus of efforts aimed at easing the difficult energy supply and network situations was on market-based measures and, to the extent possible, on the technical optimisation of the grid. Already in December 2015 ElCom called on Swissgrid to procure the system services for the critical period from February to April in order to secure the necessary water reserves. ElCom also instructed Swissgrid to temporarily prohibit the monthly products for energy exports and only issue these on a daily basis, as well as to adapt its redispatch contracts with power plant operators so that they would reserve quantities of energy in their reservoirs for redispatch measures.

ElCom also petitioned Swissgrid to raise the price cap for the use of tertiary reserve energy from 3000 to 9999 euros per megawatt hour in order to help maintain the equilibrium between the balance groups and make maximum use of the import and network capacities.

When Beznau 2 nuclear power plant was put back into operation at the end of December 2015, Switzerland had again additional production of 365 MW at its disposal and that at the 220 kV network level, which had been affected by shortages. This meant that the load flows in the transmission network were redistributed and it was possible to increase the import capacity at Switzerland's northern border. The energy supply and network situations were eased slightly at the beginning of the new year thanks to the relatively warm winter and the improved hydraulicity of the run-of-river power plants.

The problems that arose in winter 2015/16 are to be analysed in the course of 2016 with a view to identifying a potential need for action for future winter periods. It will be important to discuss the roles and responsibilities of the various players involved with respect to supply security, and to eliminate any identified uncertainties in the interface between the energy sector and the grid.

4 Networks

The Swiss transmission network has a length of 6700 km.

4.1 Facts and figures relating to Switzerland's electricity networks

In the course of the past few years, the inventory of installations in Switzerland's electricity network increased slightly in most categories (cf. Table 5). As expected, the number of overhead lines and mast transformer stations fell, while the quantity of cables and transformer stations increased.

Type of installation	2010	2011	2012	2013	2014	Unit
Pipe system, high voltage (NL 3), medium voltage (NL5) and low voltage (NL 7)	101'409	102'832	104'894	111'626	116'477	km
Cable, high voltage (NL3)	1893	1917	1980	1976	2031	km
Cable, medium voltage (NL 5)	30'607	31'370	32'174	32'833	33'544	km
Cable, low voltage (NL 7)	72'852	72'491	73'382	75'127	76'311	km
Cable, connection to household (NL 7)	45'926	46'454	47'957	50'972	52'569	km
Supply line and cable (NL 1)	6750	6750	6750	6750	6750	Line km
Overhead line, high voltage (NL 3)	7057	6935	6918	7059	7158	Line km
Overhead line, medium voltage(NL 5)	12'232	11'888	11'570	11'151	10'914	Line km
Overhead line, low voltage (NL 7)	11'558	11'117	10'835	10'227	9719	Line km

Type of installation	2010	2011	2012	2013	2014	Unit
Substation, NL 2, NL 3, NL 4 and NL 5	1114	1192	1144	1097	1314	Quantity
Transformer, NL 2	150	158	154	155	152	Quantity
Switching field, NL 2[1]	139	164	185	163	177	Quantity
Transformer, NL 3[2]	92	96	97	82	81	Quantity
Switching field, NL 3[1]	1917	2268	2577	2449	2545	Quantity
Transformer, NL 4	1117	1140	1147	1144	1145	Quantity
Switching field, NL 4[1]	1384	1781	1906	1952	2110	Quantity
Transformer, NL 5[2]	1067	758	585	536	566	Quantity
Switching field, NL 5[1]	22'467	27'811	27'366	29'468	26'727	Quantity
Transformer station, NL 6	48'985	49'190	51'100	51'862	52'425	Quantity
Mast transformer station, NL 6	6287	6150	5716	5831	5685	Quantity
Cable distribution box, low voltage (NL 7)	155'764	158'937	156'839	170'285	171'712	Quantity
No. of network operators	687	683	679	671	659	

1) Switching fields encompass the upper and lower field at the respective network level, except in the case of network level 2, for which the upper switching field is allocated to network level 1 in accordance with Article 2, paragraph 2 of the Electricity Supply Ordinance.
2) Transformers at network levels 3 and 5 handle different voltage series within the network level (e.g. at network level 3110 and 50 kV).

Table 5: Installations in the Swiss electricity network

The residual value of the installations in the distribution network is around 18 billion Swiss francs. The amount of network use revenue (excluding fees and payments to the state and remuneration of feed-in at cost) is 3,4 billion Swiss francs per annum after reduction for redundancies.

Figures 3 and 4 below show the distribution of ownership and revenue from network use by size of company. In both cases, the 100 largest network operators are divided into groups of ten, while the remaining 600 operators have been grouped together in a separate category. The ten biggest network operators (dark blue) account for around 40 percent, the 50 largest (dark blue, brown, green, violet and light blue) for around 75 percent and the next 50 for around 10 percent of the value of all declared installations (Figure 3). The remaining 600 network operators (in the "Remainder" category) account for only around one-sixth of the total value of the installations in the distribution network.

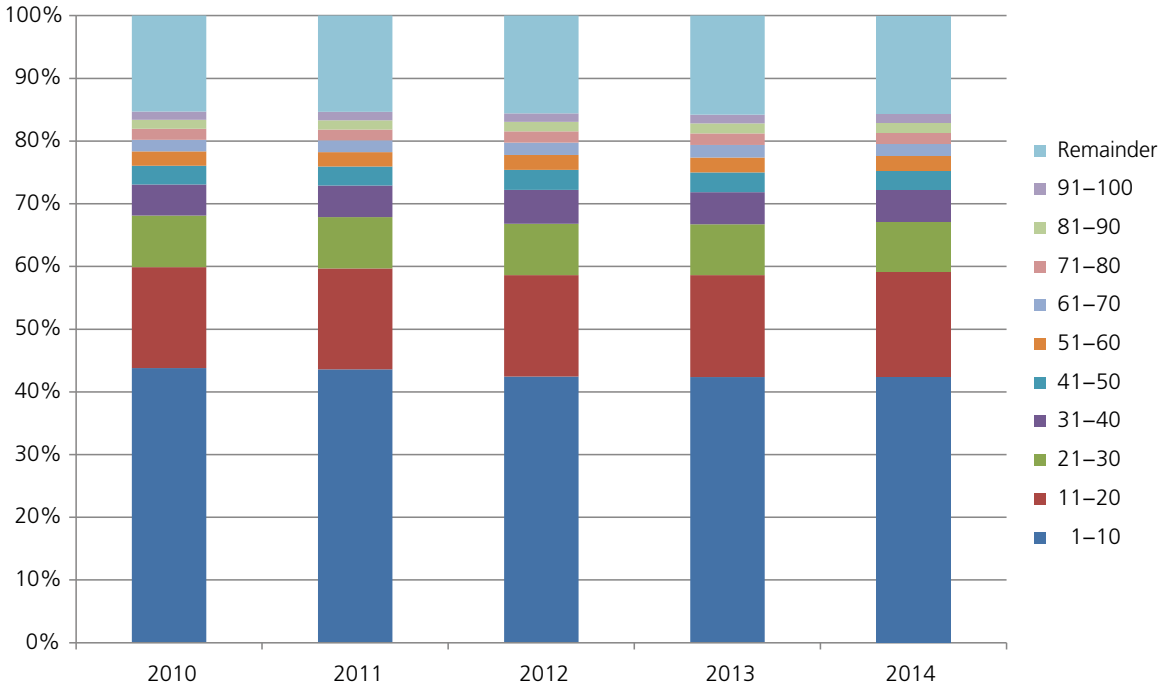


Figure 3: Proportional holdings in the distribution network by company size

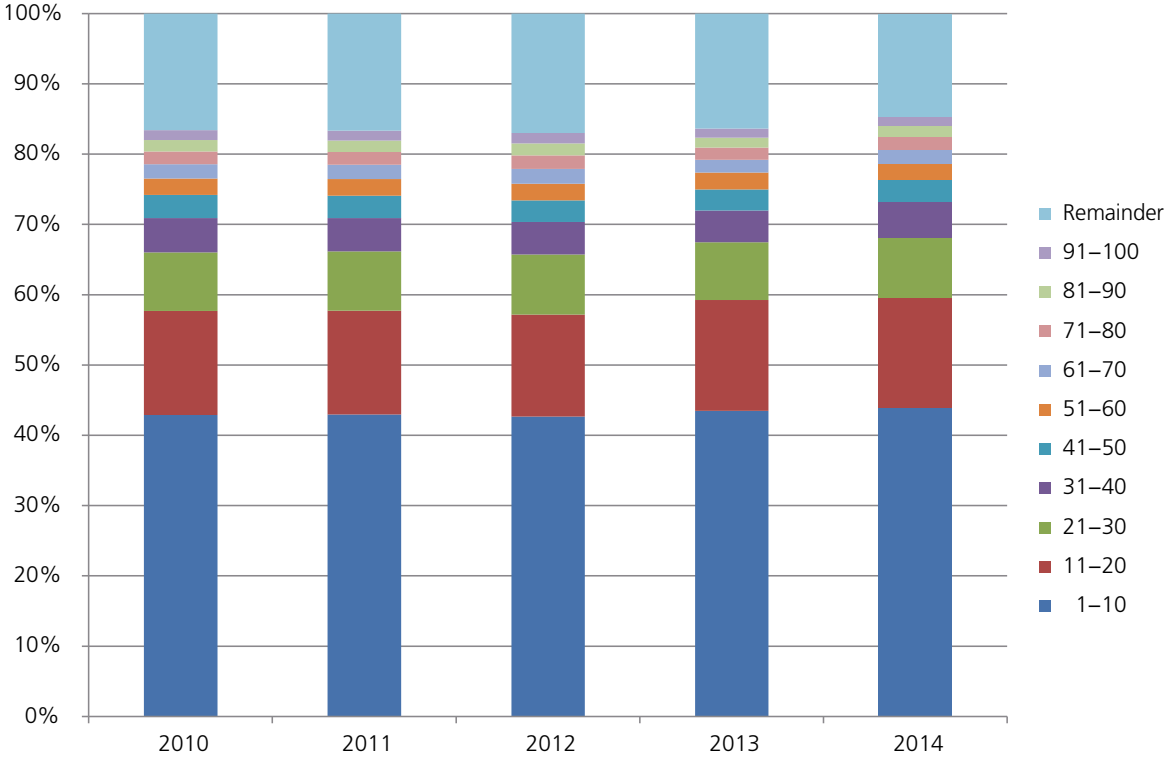


Figure 4: Proportion of network utilisation revenue (distribution network) by company size

The distribution depicted in Figure 3 corresponds to the revenue generated from network use (grid usage charge, cf. Figure 4). The relative importance of network operators by size of company remained unchanged in the period under review.

As we can see from Figures 3 and 4, most network operators are small companies. Only one in ten network operators supplies more than 10'000 end consumers, and the average operator only supplies 1100 end consumers (not shown in Figures 3 and 4).

Figure 5 shows the breakdown of network costs (including taxes, fees and services), which total 4,1 billion Swiss francs per annum. Operating and capital costs account for the largest share, at more than 80 percent. The increase in capital costs by 200 million Swiss francs between 2013 and 2014 is largely attributable to the higher imputed interest rate (weighted average cost of capital) for 2014. The remaining amount comprises direct taxes, plus fees and payments to the state (including the fee for remuneration of feed-in at cost and for the protection of bodies of water and fish).

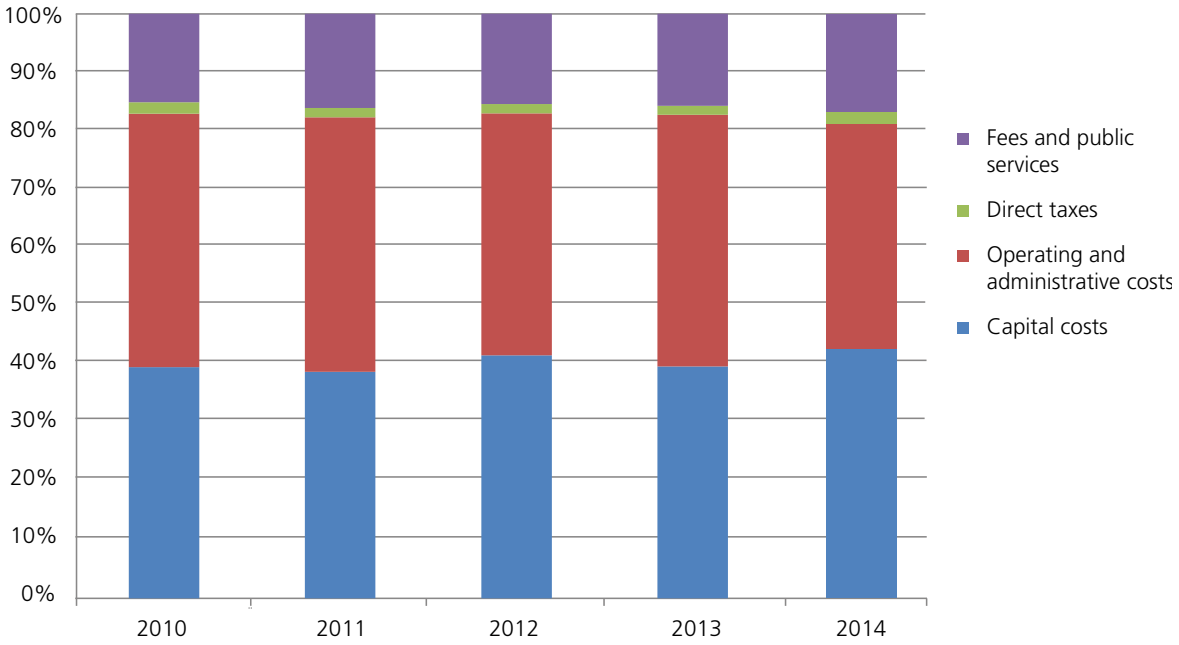


Figure 5: Breakdown of network costs

4.2 Grid expansion and planning

4.2.1 Long-term planning of the transmission network

A variety of decisions relating to grid corridors and planning approval requests will have to be assessed at the federal level, taking due account of the criteria specified in the Federal Electricity Supply Act. ElCom is involved in these procedures and needs to have objective and transparent planning fundamentals at its disposal in order to make the necessary assessments.

At the beginning of 2015, Swissgrid completed its "Strategic Grid 2025" report, which it presented to the public in April. With this report, the long-term planning of the transmission network has now been coordinated Swiss-wide. It essentially meets the requirements specified in Article 8, paragraph 2, section 2a of the Federal Electricity Supply Act.

From the point of view of ElCom, the report represents a significant milestone in the Swiss-wide planning of the transmission network, but it can also contribute towards the improvement of cross-border coordination in the areas of financing and use of the grid. The magnitude of the investments for the expansion and maintenance of the grid appears plausible and the preservation of the value of the transmission network can be assured on the basis of the defined planning. However, the degree of transparency with respect to the cross-border financing of infrastructure and the utilisation of auction proceeds needs to be increased. In the view of ElCom, the next stage of technical long-term planning therefore needs to be evaluated together with the long-term financial planning.

The "Strategic Grid 2025" report takes due account of the requirement of balanced investments as specified in Article 22, paragraph 3 of the Federal Electricity Supply Act. However, the uncertainty with respect to efficiency is probably considerably greater than the comprehensive, exact calculations of the indicated net benefit might suggest. The uncertainties need to be quantified with the aid of sensitivity analyses for the purposes of the further discussions surrounding long-term planning and the evaluation of options in sectoral plan and planning approval procedures. This will enhance the validity of the cost/benefit analysis. With respect to cross-border financing, discussions concerning methodology need to be intensified between Swissgrid and ElCom, as well as within all relevant bodies.

According to the report released by Swissgrid, it is now possible to assess the previously hard-to-measure criterion of efficiency on the basis of a highly objectified method and transparent assumptions. This is, of course, a welcome development. However, the uncertainties associated with the evaluation of the "benefits" are also reflected in the criterion of efficiency. Hence, the same sensitivity deliberations have to be applied here as are applied to the uncertainties relating to benefits.

In the year under review, ElCom was involved in a variety of proceedings concerning the transmission lines sectoral plan and planning approvals and contributed its specialised know-how, especially in the area of economic viability. ElCom also wants to contractually regulate its cooperation with the relevant authorities (Federal Inspectorate for Heavy Current Installations; Swiss Federal Office of Energy).

4.2.2 Long-term planning of the distribution networks

To date, ElCom has discussed specific points it regards to be of relevance to long-term planning with distribution network operators, in particular the uncertainties with respect to the recoverability of costs for various expansion options.In the year under review, ElCom conducted a survey among distribution network operators concerning the issue of long-term planning. The aim here was to obtain more detailed information about how the operators approach the preparation of their long-term planning, where uncertainties exist and how operations are coordinated between the various network levels.

The main results of this survey are summarised below:

- In the majority of cases, distribution network operators who, in accordance with Article 8, paragraph 2 of the Federal Electricity Supply Act, are obliged to prepare long-term planning, do so for internal purposes only. Some do not prepare any long-term planning at network level 3. This is because they either only possess very few lines, most of which are then managed by larger operators at network level 3, or else the lines are only used for energy transmission.

- As a rule, long-term planning includes lines with voltages lower than, as well as higher than, 36 kV.

- Long-term planning is updated annually and encompasses a timeframe of two to ten years. In some cases, updating is carried out in different time-frames for network elements above 36 kV and those below 36 kV.

- In the majority of cases, long-term planning is strictly tied to financial planning.

- In their long-term planning, the majority of operators pursue the strategic objective of achieving (at least) the same level of quality at lower cost.

- At network level 3, operators adhere in principle to the n-1 safety concept; the need for expansion is primarily based on the network load.

- In the past, the recoverability of the costs of expansion projects was assumed by most operators; otherwise, they would consult with ElCom. The majority of operators also assume the recoverability of costs for future expansion projects.

- Long-term planning at network level 3 is coordinated either systematically or directly with the neighbouring network operators. In some cases, shared target networks are defined.

In the view of ElCom, most network operators orient their long-term planning on the applicable legal requirements, therefore there is no need for action with respect to the basic approach. As soon as it is able to gain a clearer idea as to whether any legal amendments need to be put into effect in the future, and if so, which ones, ElCom will comment on the details and pending issues relating to long-term planning. For the time being, ElCom recommends that network operators should refer to the document entitled "Long-term planning for network levels 2 and 3" published by the Swiss Association of Electricity Producers (VSE). If operators have any questions regarding the recoverability of costs for various expansion options, ElCom will be pleased to provide them with detailed information.

4.2.3 Participation in the sectoral plan and planning approval procedures

ElCom frequently participates in consultations on the sectoral plan and planning approval procedures. There are currently around half a dozen such procedures in progress and in its assessments, particular attention is being given to the aspect of the economic viability of submitted project applications. Moreover, all projects are analysed within the scope of long-term planning. In order to improve coordination within these procedures, ElCom is seeking to conclude a cooperation agreement with the Swiss Federal Office of Energy (SFOE) and the Federal Inspectorate for Heavy Current Installations.

4.3 Investments in the grid infrastructure

4.3.1 Investments in the transmission network

Within the scope of its 2016 long-term planning, Swissgrid published a report on its investments during the year under review and deviations versus the planned investment programme.

During the period from 1 January 2015 through to the third quarter, 182 million Swiss francs were budgeted for investments. In practice, however, a total of 125 million Swiss francs was invested, i.e. 57 million less than budgeted. The main reasons for this deviation were as follows:

- Delays in approval procedures: Delays in approval procedures automatically give rise to delays in the implementation of the planned measures. This primarily concerned construction projects for transmission lines (e.g. Pradella-Sils) and the connection of the Nant de Drance power plant. Any delay in planned projects results in lower expenditure from the investment budget for the current year. However, the costs concerned are simply incurred at a later date, so the reduced expenditure does not take the form of savings as such. Overall, 54 percent of the deviations from the budget in 2015 were attributable to delays in approval procedures.

- Optimisation during the planning phase: Here, those projects are cited that were either postponed or modified during the planning phase. For example, the substation project in Rüthi and the Bonaduz-Winkeln-Rüthi transmission line that is to terminate there had to be modified in order to meet new requirements (feed-in of additional lines in the substation). The cited amounts therefore encompass genuine efficiency gains as the result of optimised planning, but also the implementation of planned projects that had been postponed. Overall, 27 percent of the deviations from the budget were attributable to optimisation during the planning stage.

- Optimisation during the realisation stage: The modification of projects during the realisation stage primarily applies to substation projects. For example, savings were achieved in the Laufenburg and Veytaux substation projects following renegotiations with suppliers or procurement at lower prices. These deviations from the budget represent genuine efficiency gains for the users of the network. Overall, 14 percent of the deviations from the budget were attributable to optimisation during the realisation stage.

- Other deviations: This includes costs associated with projects that were not budgeted for 2015 (notably the Linth-Limmern substation). In certain other projects, however, the budget was not fully utilised, for example due to delayed calls for tenders or increases

in costs during the realisation stage (e.g. as the result of natural disasters or additional demands by contractors). Overall, 5 percent of the deviations from the budget were attributable to such occurrences.

To summarise, the effective expenditure by Swissgrid during the period was 57 million Swiss francs below the original budget. Delays in implementation (31 million Swiss francs) were the main reason for this deviation. At the same time, Swissgrid was able to realise efficiency gains and thus reduce the effective costs of the grid by 24 million Swiss francs to the benefit of users.

4.3.2 Investments in the distribution network

As an integral part of its monitoring activities, ElCom assesses whether sufficient investments are carried out in order to keep the electricity network in good condition. For the period from 2009 to 2014, the distribution network operators reported annual investments of around 1,4 billion Swiss francs and write-offs amounting to between 0,8 and 0,9 billion Swiss francs (cf. Figure 6). Since the supply quality is good in an international comparison (cf. section 0) and the investments clearly exceed the write-offs, ElCom considers the investments in the distribution network to be sufficient.

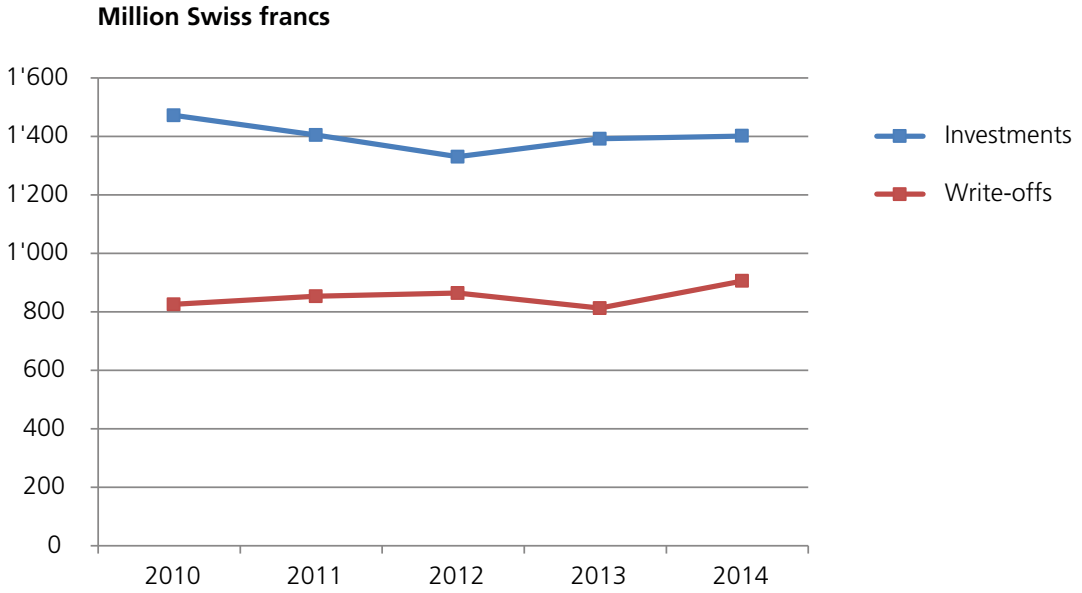


Figure 6: Trend in investments and write-offs in the distribution network

4.4 Increases in network capacity

Additional network capacity may become necessary in order to connect producers of electricity from renewable energy to the grid. Swissgrid refunds the associated costs by incorporating them into its calculation of the system services tariff. This form of remuneration therefore requires approval from ElCom, which relies on a directive that serves as a guideline for network operators when submitting applications. The directive also specifies the criteria for the assessment of such applications. ElCom revised this directive in 2015 (Directive 2/2015) and, in doing so, it took account of previous practice as well as the interests of the network operators. In the revised version, the requirements regarding the provision of documentation were specified in greater detail, as were the criteria for the consideration of variants:

- For the purpose of obtaining detailed information, ElCom may carry out an onsite inspection.

- For the comparison of variants, the options based on the current status of technology have to be taken into account. Network operators are therefore required to examine variants with active grid elements 1 (adjustable transformers or voltage regulators) as a variant for increasing the network capacity, or else to demonstrate that a particular variant with active grid elements is not technically and/or economically feasible. For the purpose of determining the amount of remuneration, ElCom will base its calculation on the associated costs of the economically most favourable variant.

- ElCom makes the remuneration of the petitioned costs for necessary increases in network capacity dependent on whether a detailed statement of the project costs and all receipts are submitted.

- For more extensive increases in capacity, a comparison showing the reliable cost estimates of the examined variants versus the potential costs of a step-by-step capacity increase has to be submitted.

In the year under review, ElCom evaluated 199 applications for the remuneration of costs associated with increases in network capacity. In the past six years, ElCom has issued a total of 378 rulings relating to applications for remuneration of network capacity increases (cf. Figure 7).

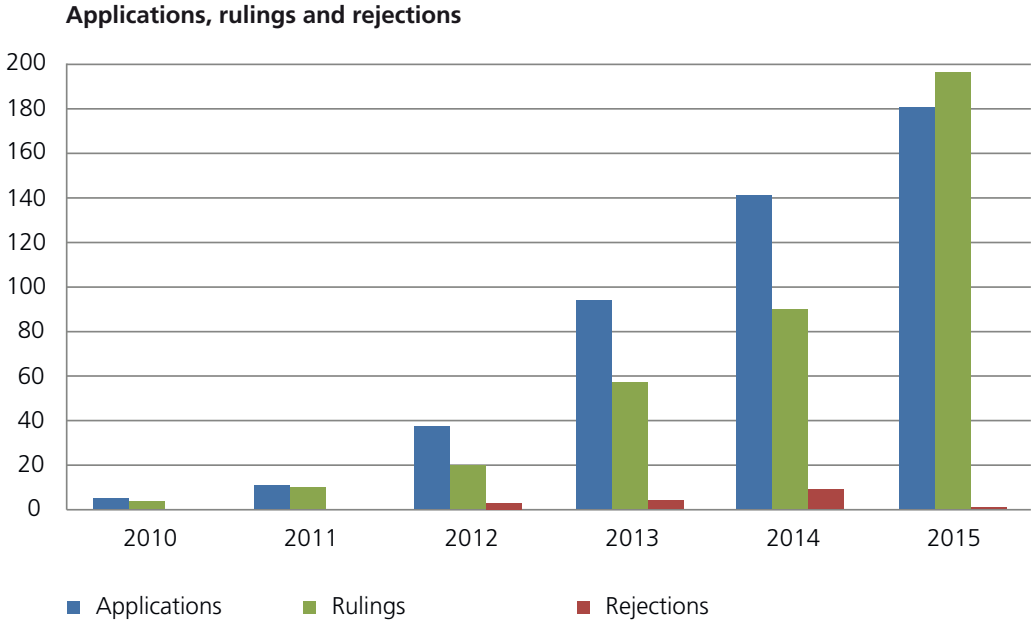


Figure 7: Trend in the number of rulings on network capacity increases (status: 4 January 2016)

The total costs for network capacity increases have meanwhile reached 43,12 million Swiss francs, with a total power plant output of 196,9 MW. presents an overview of the key data relating to network capacity increases in the period from 2009 to 2015.

	Total	Photo-voltaics	Wind	Other sources[1]
Number of rulings	378	356	3	19
Minimum generator output [kW][2]	13	13	3000	22
Maximum generator output [kW][2]	74'000	2038	16'000	74'000
Total generator output [kW]	196'922	56'680	23'000	117'242
Average generator output [kW]	532	163	7667	6171
Minimum costs [CHF][2]	3500	3500	1'805'003	19'311
Maximum costs [CHF][2]	9'262'389	372'175	9'262'389	2'117'200
Total costs [CHF]	43'116'660	24'433'349	13'523'872	5'159'439
Average costs [CHF][3]	116'532	70'211	4'507'957	271'549
Minimum relative costs [CHF/kW][4]	3	3	451	3
Maximum relative costs [CHF/kW][4]	7418	7418	819	1968
Average relative costs [CHF/kW][4]	219	431	588	44

1) For example, biomass, small hydropower plants, applications involving different types of installations
2) Per application/ruling
3) Corresponds to the average value of approved costs of network capacity increases per ruling
4) Relative costs = ratio of costs to installed capacity

Table 6: Figures relating to rulings on network capacity increases pronounced between 2009 and 2015 (status: 4 January 2016)

4.5 National grid operator (valuation/sales of shares)

As of the beginning of 2015, various network and power plant operators transferred further system components of the transmission network to the national grid operator, Swissgrid. For a variety of these system components, no rulings regarding their regulatory value had been made. In view of this, ElCom pronounced 16 rulings in the year under review that served as the basis for provisional compensation for the transferred system components. Then, at the beginning of 2016, more system components of the transmission network were transferred to Swissgrid, and ElCom initiated discussions with the involved parties with the aim of definitively valuating the system components and specifying the valuation method. These discussions have not yet been concluded.

In 2014, the Alpiq Group, along with other shareholders, publicly announced its intention to terminate its participation in Swissgrid AG and initiate the sale of shares. Any such transfer of shares in Swissgrid has to be effected in accordance with the Federal Electricity Supply Act, which specifies that it is primarily the Board of Directors of Swissgrid AG that is responsible for ensuring compliance with the relevant legal requirements. ElCom, in its capacity as supervisory authority, is responsible for monitoring compliance with the legal provisions.

On 28 May 2015, Alpiq concluded a share sale agreement with Société d'Investissement de Suisse Occidentale SA (SIRESO). SIRESO is a consortium under the leadership of the cantons of Western Switzerland (Geneva, Vaud, Fribourg, Valais, Neuchâtel and Jura). On 30 July 2015, BKW Netzbeteiligung AG claimed a right of first refusal regarding the shares in Swissgrid AG previously held by Alpiq. SIRESO then referred the matter to ElCom on 8 September 2015, with a petition calling for Swissgrid AG to be prohibited (if necessary in the sense of a provisional measure) from approving the transfer of the shares held by Alpiq to BKW. In a ruling dated 15 October 2015, ElCom rejected the petition submitted by SIRESO calling for the imposition of provisional measures. In its ruling, ElCom confirmed that it is the relevant authority for deciding on matters pertaining to the assessment of preemptive purchase rights, insofar as they are governed by Swiss electricity supply legislation.

4.6 Rulings and decisions relating to networks

In the year under review, ElCom pronounced a number of rulings on the applicable conditions for end consumers and energy production facilities to be connected to the electricity grid. The technical conditions for the connection of energy production facilities to the grid grant network operators the authority to intervene in the active power output of such facilities in the event that problems should occur in the network. ElCom confirmed that this provision is lawful. It also confirmed the criterion of under- or overexcited operation of an energy production facility up to an output factor of cos φ 0,9, insofar as this is required for maintaining the voltage level at the feed-in point. By contrast, ElCom found inadmissible that a regulation that in general calls for the costs associated with control measurements carried out at the time at which an energy production facility is put into operation to be borne by the producer. The specific case in question involved a facility with a connected load of approximately 650 kVA. ElCom has not yet ruled on the question of whether the assessed criteria also have to be fully complied with by facilities with a lower connected load.

ElCom also had to rule on an existing connection to a medium-voltage network that in the past had been converted from 12 to 20 kV. It found that the previous entity connected to the 12 kV network does not have an entitlement to continuation of the former network connection (with 12 instead of 20 kV). On the contrary, the non-discriminatory application of the guidelines of the network operator regarding network connection would mean that this entity, too, should be supplied with 20 kV. An appeal against this ruling is currently pending at the Federal Administrative Court.

In a ruling dated 11 June 2015, ElCom commented on its authority with respect to connection of a photovoltaic system to the distribution network of the grid operator, stating that the competencies with respect to the connection guarantee (i.e. the "if" question) and the connection conditions (the "how" question) have to be strictly separated. The former lies in the sphere of authority of the cantons, while ElCom is responsible for the latter. In the case in question, ElCom specified the technically and economically most favour-

able feed-in point, but did not compel the network operator to physically connect the system.

In a separate case, the Federal Administrative Court confirmed an interim ruling by ElCom, according to which the latter is not the relevant authority for specifying contributions towards network connections and costs.

In two rulings, the Federal Supreme Court backed the practice of ElCom with respect to site networks, according to which these cannot be regarded as electricity networks as defined in the Federal Electricity Supply Act. This means that the rights and obligations that apply to electricity network operators under the relevant legal provisions do not apply to site network operators. A site network is part of the network area of the responsible distribution network operator. Therefore, the Federal Electricity Supply Act applies to the end consumers connected to the site network. The legal relationships between distribution network operators, site network operators and end consumers are not governed by the Electricity Supply Act, but rather through contractual provisions. The question of whether remuneration for the use of a site network is owed and, if so, how much, is something that has to be regulated by the involved parties under private law and is therefore outside the realm of responsibility of ElCom.

5 The Swiss electricity market

Here at the Swissgrid Control Center in Laufenburg, the Swiss electricity network is being monitored round the clock.

5.1 Market access and change of supplier

In the initial stage of liberalisation of the Swiss electricity market, only major consumers with an annual consumption of at least 100 MWh have the option of choosing their own supplier. They benefit from network access and are entitled to decide as of the end of October each year whether they want to change their supplier for the coming year.

In 2014, ElCom granted network access to two construction consortiums that are organised as ordinary partnerships in accordance with the Swiss Code of Obligations. In the year under review, the Federal Administrative Court ruled in both cases that the construction consortiums in question cannot be regarded as end consumers as defined in the applicable legislation, because they do not purchase electricity for their own use. This means they are not entitled to petition for network access. These rulings had not yet been declared legally binding as of the end of the period under review.

In order to ascertain the number of end consumers in the free market, ElCom conducted a survey among the 80 largest distribution network operators, which together account for around 80 percent of the end consumption in Switzerland (excluding public transport) amounting to approximately 53 TWh. In the networks of the surveyed operators, 31'000 end consumers (or 0,5 percent of the total number) have free market access. This group of major consumers accounts for the consumption of around 22 TWh, or approximately 50 percent of the energy used by end consumers in Switzerland (excluding public transport).

Figure 8 shows that, in the first few years after the liberalisation of the market, little use was made of the right to freely choose a supplier: During this period, only seven percent made use of this option (red curve). The almost twice as high proportion of 13 percent with respect to the volume of energy (blue curve)

indicates that it was primarily very large consumers who chose their own supplier during this period. In the course of the next three years (2012 to 2014), the proportions rose by around a factor of four to 27 and 47 percent respectively. This trend persisted, though at a slower rate, in the year under review with figures of 33 and 53 percent respectively, then increased sharply again in the following year, so that the proportions for 2016 are expected to reach 56 and 74 percent respectively. This means that roughly 50 percent of end consumers entitled to do so are now making use of free market access because the prices on the market have become lower than those for basic supply.

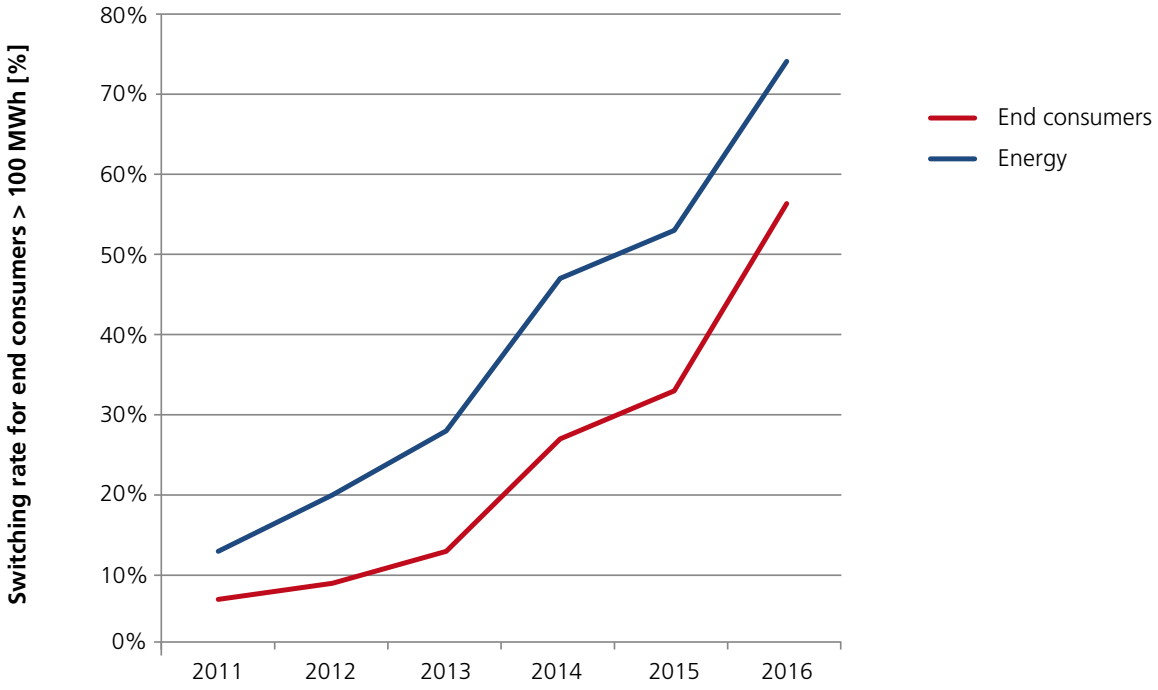


Figure 8: Transfer to the free market

As we can see from Figure 9 below, the ten biggest network operators alone (dark blue) account for around 40 percent of the total quantity of electricity supplied to end consumers in the distribution network. If we look at the figures for the biggest 50 network operators (dark blue, brown, green, violet and light blue), we can see that they account for around three-quarters of the supplied energy. The next 50 biggest operators together supply one-tenth, while the remainder supply one-sixth of the energy consumed by end users.

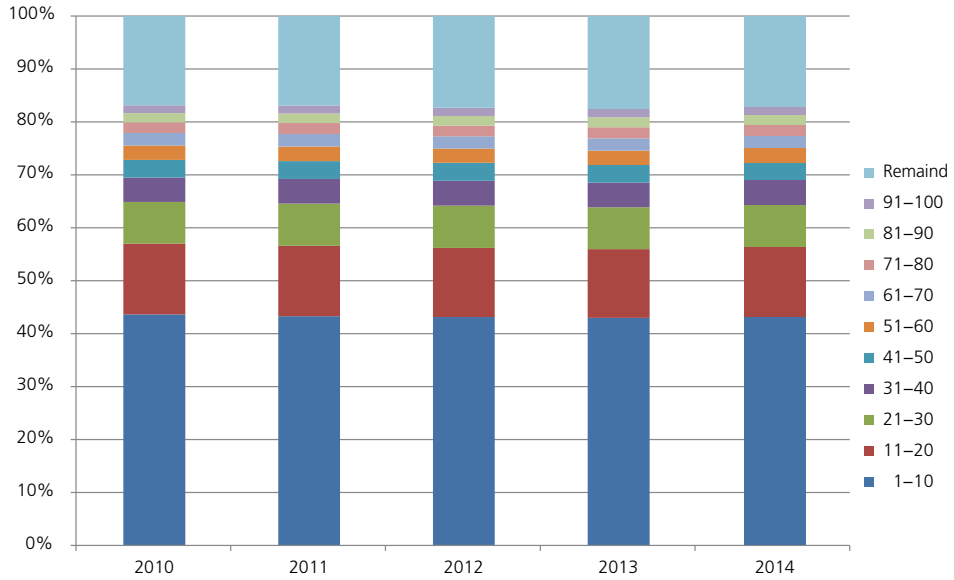


Figure 9: Proportion of energy supplies via the distribution network, by company size

The structure in Figure 9 is almost identical to that depicted in Figure 3 (proportional holdings), but it does not always concern the same companies.

5.2 Transmission network tariffs

In the period from 2012 to 2016, the tariffs for the use of the transmission network and the general system services were subject to considerable fluctuations (cf. Table 7). The reasons for this were the various court rulings and the resulting payments to the owners of the transmission network and to power plants.

	2012	2013	2014	2015	2016
Grid usage					
Working tariff (cents per kWh)	0,15	0,16	0,19	0,22	0,25
Power tariff (Swiss francs per MW)	23'500	24'600	30'900	36'100	41'000
Fixed basic tariff per exit point	225'000	235'400	285'500	336'300	387'700
System services tariff (cents per kWh)	0,46	0,31	0,64	0,54	0,45

Table 7: Trend in transmission network tariffs for network use and general system services for distribution network operators and end consumers

If we express the overall tariffs for network use and system services in the transmission network in cents per kWh, the resulting tariffs for the period from 2014 to 2016 are around 1,3 cents per kWh. On average, an end consumer in category H4 (annual consumption of 4500 kWh, which is equivalent to a five-room apartment without an electric boiler) pays 10,1 cents per kWh in 2015 for network use (see below). The proportion of the transmission network (1,3 cents per kWh) to the overall network costs is therefore around 13 percent.

5.3 Distribution network tariffs

Since the tariffs for 2016 were already published at the end of 2015, it is possible for them to be commented on here and compared with those for the year under review. On average, the overall tariffs for households remained constant at 20,4 cents per kWh (cf. Figure 10, showing data based on the example of consumer profile H4). This gives rise to opposing effects: On the one hand, the average network costs increased by 0,3 cents per kWh, fees by 0,1 cents per kWh and payments to the state for the promotion of renewable energy (remuneration of feed-in at cost) by 0,2 cents per kWh, including the fee for the protection of bodies of water and fish. On the other hand, the average energy tariffs were reduced by around 0,5 cents per kWh. Overall, tariffs for category H4 in 2015 and 2016 reached their highest level since the Federal Electricity Supply Act entered into force.

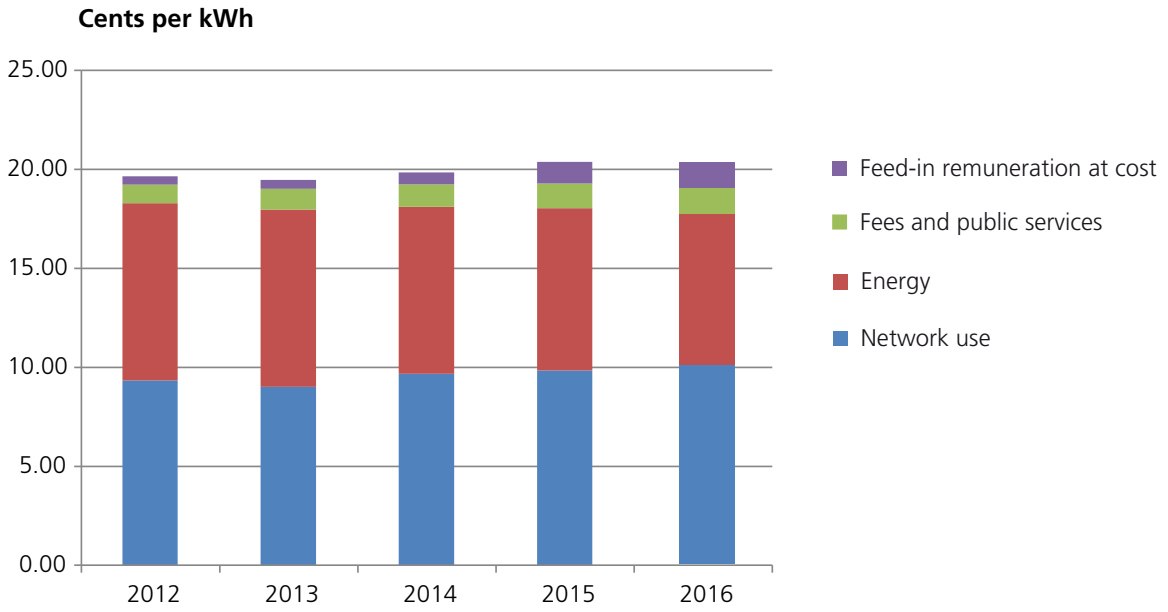


Figure 10: Cost components of the overall electricity price for consumer profile H4 (excluding value-added tax)

Between 2012 and 2016, the average cantonal tariffs for network use increased by around 0,5 cents per kWh, while the regional distribution remained largely unchanged (cf. Figure 11). By contrast, energy was cheaper on average by 1,3 cents per kWh, but the discrepancy between east and west grew more pronounced (cf. Figure 12).

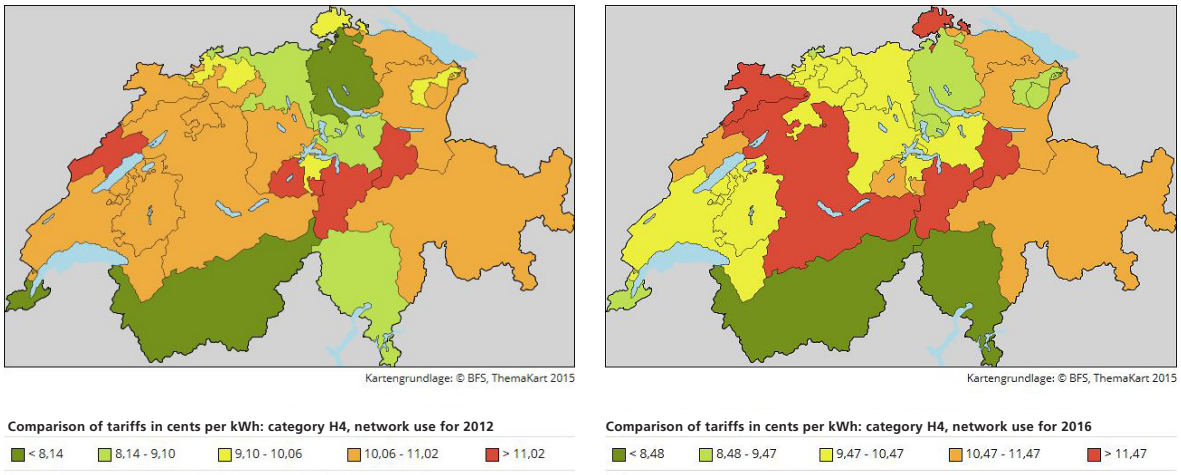


Figure 11: Comparison of average cantonal costs for network use for consumer profile H4 in 2012 and 2016

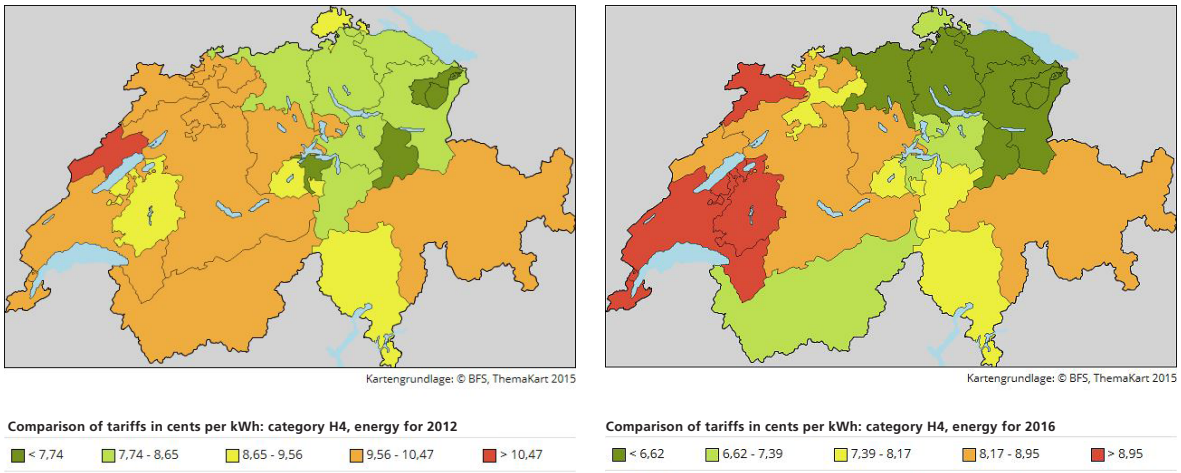


Figure 12: Comparison of average cantonal costs for energy for consumer profile H4 in 2012 and 2016

As we can see from Figure 13, the average (median) cantonal tariffs for cantonal and municipal fees and payments to the state (excluding the Swiss-wide uniform federal fees for the promotion of renewable energy and the protection of bodies of water and fish) rose by around 0,1 cents per kWh in the period under review. Furthermore, we can also see that there are frequent high and low levels, but very few intermediate (indicated in yellow) levels. Unlike the costs for network use and energy, the level of fees and payments is not determined by ElCom, but rather is specified via the cantonal and municipal political process.

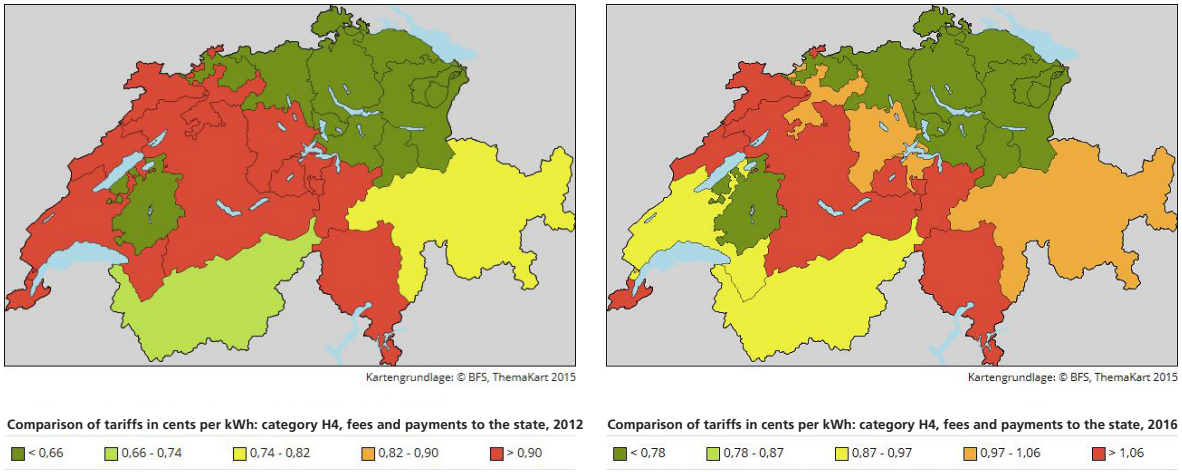


Figure 13: Comparison of average cantonal costs for cantonal and municipal fees and payments to the state for consumer profile H4 in 2012 and 2016

5.4 Examination of tariffs

In the year under review, ElCom examined the conformity of tariffs in four different ways:

- Each network operator is required to submit its cost accounting by the end of August, which forms the basis for the network and energy tariffs for the following year. ElCom uses around 150 tests in order to check the cost accounts for errors, inconsistencies and implausible figures, and returns its evaluations to the network operators for adjustment where necessary. All 636 network operators who submitted their cost accounting on time or after the first reminder received ElCom's assessment in the year under review.

- ElCom also examined the figures submitted by network operators for the tariffs for the following year based on various criteria such as level of tariff and applied interest rate. In a total of 73 cases the balance was found to be in order. ElCom, in its capacity as regulator, informed these network operators that it would not be opening proceedings against their tariffs.

- If a network operator still had unlawful or implausible figures in its cost accounting even after it had been adjusted, ElCom carried out an audit in the corresponding segments. In the year under review, ElCom reprimanded infringements against the "95 Swiss francs" rule in particular. According to this rule, the balance of costs and profits in the area of energy distribution is deemed to be of relevance if it exceeds 95 Swiss francs per invoice recipient. Following the ruling by the Federal Administrative Court concerning energy tariffs (see below), ElCom terminated the audits it had initiated and suspended formal proceedings.

- Finally, in several cases ElCom comprehensively examined the entire spectrum of network and energy costs (the latter only for end consumers with basic supply). In three of these cases ElCom could make rulings on the network costs and thereby conclude the proceedings.

In the year under review, tariff audits focused on the following aspects:

Network evaluation: Some network operators only make write-offs on their facilities for the first time in the year after they were put into operation, instead of already in the first year of operation. This is contrary to Article 13, paragraph 2 of the Federal Electricity Supply Ordinance, which stipulates that facilities must be written off linearly to a residual value of zero over their entire useful life. ElCom therefore requires write-offs to be made from the time at which a facility is put into operation.

There were also differences with respect to the costs for the demolition of facilities to be replaced. Some network operators add the demolition costs to the acquisition or production costs of the new facility installed at the same location. This means that the demolition costs of the old facility are written off, and interest is applied over the entire useful life of the new facility. In the view of ElCom, this procedure is inadmissible because, in accordance with Article 15, paragraph 3 of the Federal Electricity Supply Act, the capital costs (i.e. write-offs and interest) may only be recognised for new facilities. In order for network operators to avoid incurring a loss as a result of the demolition, they can include the imputed residual value of the demolished facility in the recoverable costs as an extraordinary write-off in the year in which the facility was demolished and thus incorporate it into the tariffs. In one case, an appeal was lodged against a ruling by ElCom based on the above deliberations.

Operating costs: As in previous years, the majority of adjustments imposed by ElCom concerned the distribution of costs by segment and recoverability. With respect to the distribution of costs by segment, it was often the case that remuneration for network use was charged on the basis of excessive common costs or non-recoverable costs. For example, costs for sponsoring or public lighting are non-recoverable. Generally speaking, costs that have nothing to do with the operation of a safe, productive and efficient network are non-recoverable.

The specification of the tariff for grid losses was also a disputed issue. In most cases this concerns the question of whether, in its capacity as energy supplier, a network operator is permitted to make a profit from the sale of grid losses to its own network that exceeds the interest on the utilised capital. While network operators claim a profit derived in different ways, ElCom accepts as a maximum the interest on the utilised capital as specified by Article 15 of the Federal Electricity Supply Act in conjunction with Article 13 of the Federal Electricity Supply Ordinance. The amount of recoverable costs and admissible profit has to be independent of the division of the company into organisational units and the resulting internal allocation.

Energy costs: Here the focus was on the allocation of the electricity from various sources (own power plants, purchases on the market, etc.). Some electricity supply companies allocate the electricity to end consumers with basic supply and free market customers depending on the source. By contrast, in accordance with its constant practice, ElCom allocated the electricity from the various sources to end consumers with basic supply and to other customers in such a manner as to ensure that end consumers obtain an equal proportion of electricity from each source. One electricity supply company lodged an appeal against a ruling based on the above deliberations.

ElCom also ascertained that, in the case of some network operators, the revenue from energy tariffs for major consumers who could purchase their energy on the market was below the effective costs. This means that the connected consumers are forced to cross-subsidise the energy tariffs for major consumers.

Judicial practice

In the year under review, the Federal Administrative Court ruled for the first time on the calculation of recoverable costs for basic supply. ElCom's allocation of energy costs had been based on the proportion of basic supply to overall consumption, and it therefore allocated these costs to the various procurement sources. However, the Federal Administrative Court rejected this approach, ruling that, whenever possible, costs should always be directly allocated on the basis of the smallest unit, not broken down. Furthermore, the Federal Administrative Court did not back the curtailment of distribution imposed by ElCom on the basis of the "150 Swiss francs" rule, because the comparison of efficiency carried out by ElCom did not comply with the provisions specified in the Federal Electricity Supply Ordinance. The Federal Department of the Environment, Transport, Energy and Communications (DETEC) lodged an appeal against this ruling with the Federal Supreme Court. The Federal Administrative Court also ruled that end consumers do not have party status in procedures relating to tariff audits. The involved end consumer also lodged an appeal against this ruling with the Federal Supreme Court.

In view of the fact that the matters regarding calculation of energy tariffs and party status of consumers are pending at the Federal Supreme Court, in the middle of the year ElCom decided to suspend all current proceedings relating to energy tariffs and all proceedings involving consumers as parties until the Federal Supreme Court pronounces its respective rulings.

In one case, the Federal Supreme Court was asked to rule on the question as to how interest on a coverage differential should be calculated, and here it supported the practice of ElCom, according to which interest serves to offset the non-availability of the financial resources for the duration of the shortfall and can therefore be equated to payment of credit or default interest. This means that it is justifiable to apply the interest rate that was applicable during the period of shortfall or coverage instead of the rate that was applicable in the year in which the original tariff applied. The method cited in Directive 1/2012 corresponds to the different functions of the two interest rates.

The higher courts rejected the obligation on the part of large-scale power plant operators to bear a portion of the costs for the procurement of system services. As a consequence, all power plant operators were repaid the amounts they had paid to Swissgrid in 2009 and 2010. Some operators also demanded payment of default interest. In 2013, ElCom ordered Swissgrid to pay five percent default interest with effect from the reminder date. In twelve cases, an appeal was lodged against the ruling by ElCom. The appellants claimed that their payments should bear interest with effect from the date of receipt by Swissgrid. In 2015, the Federal Administrative Court rejected all these appeals, and nine cases were referred to the Federal Supreme Court, which is expected to pronounce its ruling in the course of 2016.

5.5 Sunshine Regulation

The aim behind the planned introduction of a "Sunshine Regulation" to supplement the existing "cost-plus" regulation is to make the quality and efficiency of network operators more visible with the aid of a transparent and standardised comparison process. Here, selected indicators in the areas of supply quality, costs and tariffs measure the quality, costs and efficiency of the provision of services of individual suppliers. This direct comparison of network operators is intended to create incentives to eliminate any identified weaknesses without the need for intervention on the part of the regulator. For comparison purposes, network operators with similar structures are to be grouped together.

ElCom carried out preparatory work on the Sunshine Regulation throughout the year under review. At the beginning of the year the focus was on talks with the various interest groups and the industry. The next step was to compile the comparison groups. For this purpose, ElCom divided the approximately 670 network operators (based on their heterogeneity) into groups according to topographic circumstances and population density. All the necessary data were obtained from the Federal Statistical Office (FSO) and are publicly accessible. Based on the cost accounting and quality data that network operators submit each year to ElCom, it was possible to compile the necessary indicators for the initial test round without causing any additional administrative effort for the network operators. The results were submitted to the operators at the beginning of July, together with an invitation to provide feedback regarding the Sunshine Regulation and its implementation within the scope of the initial test round. The results of this evaluation form a valuable basis for the further development of the Sunshine Regulation. For example, for the second test round, the quantity of energy supplied to end consumers at network levels 5 and 7 is to be used as an additional criterion alongside population density.

At the end of November 2015, ElCom sent a questionnaire to the network operators concerning product diversity and the provision of services. The resulting information is to be used for preparing the second test round and will be depicted in a suitable form together with the quality and cost indicators already applied. The results of the second round of comparisons will again be sent to the network operators. The findings obtained and experience gained during the two test rounds will be evaluated and summarised in the form of a report, and ElCom will then decide on the next steps to be taken and the introduction of the Sunshine Regulation as a supplementary tariff auditing tool.

5.6 Issues relating to measurement services

In 2015, ElCom paid close attention to the issue of measurement costs and the extent to which competition exists in this area. Measurement costs have to be efficient and calculated on a usage-related basis. Once again, the measurement costs reported by various network operators were too high in the year under review. This can represent a market barrier for potential producers and end consumers entitled to network access, as reported in a communication issued in 2011 regarding measurement costs and access to measurement data. ElCom regards costs of 600 Swiss francs for load output measurement with automatic data transfer as not unduly high.

In a ruling pronounced in October 2015, ElCom rejected a petition from the operator of a photovoltaic system who wanted the services relating to the measurement of feed-in from his production plant to be performed by a third party provider instead of by his network operator. The operator of the photovoltaic system asked ElCom to order the network operator to consent to the petitioned change of provider, based on the relevant legal provisions (Article 8, Federal Electricity Supply Ordinance). In its ruling, ElCom noted that network operators do not have exclusive control of these services. While competition in the area of measurement services would be both technically and economically feasible, the legislator considers metering as a whole, and thus load measurement services, as an integral part of network operation. This means that, in the electricity supply legislation, measurement services are regulated together with the network. Requiring the network operator to consent to the change of measurement service provider would equate to a contractual obligation on the part of the operator. But since the existing electricity supply legislation is not oriented on competition in the area of measurement services, it does not provide for such an obligation on the part of network operators, so producers do not have an entitlement to choose their own measurement service provider. The operator of the photovoltaic system lodged an appeal against the ruling by ElCom with the Federal Administrative Court, and a decision by the latter is still pending.

The liberalisation of measurement services is one of the issues to be discussed within the framework of the revision of the Federal Electricity Supply Act. ElCom is in favour of creating competition in the area of measurement services as part of the revision of the cited legislation.

5.7 Feed-in remuneration at cost

In the year under review, ElCom pronounced a total of nine rulings relating to feed-in remuneration at cost and non-recurring remuneration. Six of these cases concerned the classification of photovoltaic systems, while the remainder concerned exercising the right of choice with respect to the two forms of remuneration and the questions of whether the market price applies to a small hydropower plant and whether an agriculture bonus should be granted. ElCom concluded 30 other cases without formal proceedings. The majority of these cases also concerned the question of classification of photovoltaic systems.

With respect to the classification of photovoltaic systems, the question to be examined is whether a system is integrated into the roof (in which case a higher level of remuneration applies) or is merely installed on it. In accordance with the definition cited in the Federal Energy Ordinance, a photovoltaic system is only deemed to be integrated if it forms an integral part of the roof structure and performs more than one function. By way of clarification, ElCom pointed out that a photovoltaic roof over an open space (e.g. a carport or balcony) also meets the criterion of integration if it serves as protection against weather or provides heat insulation, even if it is installed in an open area and does not replace any existing elements.

In the year under review, the Federal Administrative Court pronounced two rulings on the classification of photovoltaic systems. These cases involved producers who based the installation of their photovoltaic systems on the requirements specified in guidelines issued by the Swiss Federal Office of Energy (SFOE) that did not fully comply with the provisions of the applicable Ordinance and are no longer valid. In both cases the Court found that the photovoltaic systems are to be classified as installed, not integrated, but added that the losses incurred by the operators due to their trust in the correctness and legality of the guidelines are to be compensated.

A significantly expanded or renovated small hydropower plant is entitled to feed-in remuneration at cost. According to ElCom, in order to qualify for this form of remuneration, a small hydropower plant has to increase its electricity production by at least 20 percent versus the average level recorded in the five concluded years of operation prior to 1 January 2010. The Federal Administrative Court confirmed this criterion. This ruling thus confirmed the legality of the relevant provisions of the Federal Energy Ordinance. In another case, ElCom ruled that a small hydropower plant that benefited from additional cost financing and applied for remuneration of feed-in at cost was rightly granted the latter. But because the power plant in question subsequently no longer met the minimum requirement relating to increased production for qualifying for remuneration of feed-in at cost during a five-year period from 2009, its electricity production has to be remunerated at the market price. A reversion to additional cost financing is no longer possible.

In a further case, ElCom ruled that, in the specific instance in question, lactose cannot be classified as agricultural biomass because it was not being produced on site. In view of this, it denied the application to receive the agriculture bonus. As of the end of the year under review, the appeal lodged with the Federal Administrative Court against this ruling was still pending. In connection with another biomass plant, the Federal Administrative Court ruled that, as long as it is not the fault of the operator, the fact that heat can no longer be utilised does not disqualify the operator from the entitlement to receive remuneration of feed-in at cost.

6 International activities

Photograph of the power plant of Ryburg-Schwörstadt 30 hydropower plants along Switzerland's borders produce electric energy.

6.1 Congestion management

The Swiss transmission network is connected to the networks of its neighbouring countries at numerous points: there are fourteen transmission lines between Germany and Switzerland, four across the border with Austria, ten between Italy and Switzerland and nine across the border with France. These lines are managed by Swissgrid in close cooperation with the transmission grid operators in the four neighbouring countries.

The capacity of these cross-border transmission lines is a major factor for ensuring network stability. Thus, the cross-border capacities are limited and electricity traders have to explicitly acquire capacity via auctions for the cross-border supply of power. The management of cross-border transmission lines is referred to as "congestion management", and the legal basis in Switzerland for auctioning these capacities is Article 17, paragraph 1 of the Federal Electricity Supply Act.

In the course of the implementation of the internal European electricity market, cross-border capacities between all of Switzerland's neighbouring countries are meanwhile no longer awarded in explicit auctions, but instead implicitly via coupled markets. In mid-February 2015, another major step was taken in the direction of EU market integration, namely market coupling between Italy, Slovenia, Austria and France. The electricity markets of France, Germany and Austria had already been coupled for a number of years. Following the entry into force of the EU capacity allocation and congestion management regulations in mid-August 2015, Switzerland is now excluded from market coupling on the basis of EU legislation. This amendment of EU law in 2015 did not result in any deterioration in terms of trading options or supply security in Switzerland, but the award of cross-border capacities in the form of explicit auctions is giving rise to major inefficiencies regarding

the utilisation of the existing infrastructure. The European Agency for the Cooperation of Energy Regulators (ACER) estimated these opportunity costs at Switzerland's borders at around 80 million euros for 2014. In this context, ElCom is, as before, endeavouring to secure and optimise market access for Switzerland via the existing explicit auctions, for example by increasing the import capacity at the borders with Germany and France.

By optimising the operation of the grid, in winter 2014/15 Swissgrid was able to significantly increase the utilisable import capacity from Germany and Austria into Switzerland so that in the 2014/15 winter period the Swiss wholesale market price moved closer to the lower German level than it had been in previous years. In 2015, the average import capacity from Germany and Austria into Switzerland rose by more than 400 MW versus the previous year. Thanks to lower capacity restrictions within Italy, it was possible to increase the export capacity to that country again to the earlier level of around 3000 MW.

Switzerland's electricity supply legislation provides for exemptions from the market-based allocation (i.e. auctioning) of capacities. In particular, these apply to deliveries based on international purchase and supply agreements that were concluded prior to 31 October 2002 (Article 17, paragraph 2, Federal Electricity Supply Act) and to supplies to end consumers with basic supply and from renewable energy sources (Article 17, paragraph 2 in conjunction with Article 13, paragraph 3, Federal Electricity Supply Act). In accordance with a ruling by ElCom in connection with the allocation of capacities, deliveries to end consumers with basic supply take precedence if the network operator is unable to fulfil its supply obligation without imports (Article 17, paragraph 2, Federal Electricity Supply Act in conjunction with Article 20, paragraph 2, Federal Electricity Supply Ordinance), which was not the case in the proceedings in question. An appeal against this ruling by ElCom is currently pending at the Federal Administrative Court. In a parliamentary initiative, the Commission for the Environment, Spatial Planning and Energy of the Council of States has petitioned for the priorities applicable to deliveries to end consumers with basic supply and from renewable energy sources to be abolished. The consultation procedure concerning the amendment of the Federal Electricity Supply Act had not been concluded at the time this report was completed (Parliamentary Initiative 15.430).

6.2 Border power plants

There are 30 hydropower plants along Switzerland's borders that produce electricity from bodies of water bordering neighbouring countries. These take the form of large (pump) storage plants (e.g. Emosson, Hinterrhein), as well as run-of-river power plants along the Rhine and small hydropower plants such as La Goule am Doubs. With regard to the utilisation of cross-border transmission network capacity, these power plants represent a special case in that the distribution of electricity is often regulated by long-standing treaties between Switzerland and the respective neighbouring country. In some cases, the produced electricity may only be distributed via the congested cross-border transmission network, while in other cases the power plant is connected to the distribution network on both sides of the border so that the distribution of the produced electricity between the two countries concerned can take place independently of the transmission network.

For some power plants, exemptions from auction procedures have been granted in the congested cross-border transmission network, regardless of the conditions in the grid. In 2015, ElCom examined the technical and legal aspects of these priorities in the cross-border transmission network and pronounced five associated rulings. One of these rulings on cross-border electricity supply from border power plants has meanwhile become legally binding, while the other four have been referred to the Federal Administrative Court.

6.3 Merchant Lines

Merchant lines are cross-border transmission lines that are exempt from the obligation to grant network access to third parties. Here the transmission capacity is managed by the network operators. However, the utilisation of the capacity is reserved for the investors, who can choose whether to use it themselves or receive proceeds from the national grid operator for capacity they do not use themselves. This exemption is limited to a specific timeframe, upon expiry of which the line is transferred to the ownership of the national grid operator.

Switzerland currently has two merchant lines at the Italian border. In view of the typically considerable price difference between Switzerland and Italy on the wholesale market, merchant lines are an attractive business segment and they create an incentive to expand the congested transmission network capacity between Switzerland and Italy. In accordance with the rulings pronounced by ElCom in 2009 regarding the duration and extent of the exemption, the extent of the capacity excluded from non-discriminatory access by third parties has to be reassessed every five years. Because the Italian transmission network operator, TERNA, has frequently reduced capacities in the past few years, ElCom has more frequently adapted the extent of the excluded capacity to the fluctuating export capacity from Switzerland to Italy. In February 2015, ElCom pronounced a partial ruling concerning the Campocologno to Tirano merchant line, and an appeal against this ruling was lodged with the Federal Administrative Court.

6.4 Auction proceeds

Swissgrid allocates limited cross-border transmission network capacities via auctions. The proceeds of these auctions are shared equally between Swissgrid and the respective foreign transmission network operator for each border. Auction proceeds may be used to cover the costs of cross-border electricity supplies, to reduce the recoverable costs of the transmission network (tariffs) or for the maintenance and expansion of the transmission network (Article 17, paragraph 5, Federal Electricity Supply Act). Swissgrid may apply to ElCom for permission to use the proceeds in the desired manner, and ElCom ultimately decides on how the proceeds are to be used (Article 22, paragraph 5c, Electricity Supply Act).

In the period from 2009 to 2012, around 40 million Swiss francs were used for reducing the recoverable costs of the transmission network. The majority of the 2013 auction proceeds are to be used for the maintenance and expansion of the transmission network. Since in the previous years investments in the transmission network were not carried out to the originally planned extent, Swissgrid applied to ElCom for the proceeds from 2014 and 2015 to be used exclusively for reducing the network tariffs.

To date, ElCom has not been able to decide how the 2014 proceeds are to be used because of the ongoing discussions regarding financial planning and investments relating to the long-term planning of the transmission network. Since the decision concerning the use of the 2014 proceeds is still pending, a decision has also not yet been taken regarding the use of the 2015 auction proceeds.

Figure 14 shows how the auction proceeds generated at Switzerland's borders between 2011 and 2013 have been used and how Swissgrid has asked for the 2014 and 2015 proceeds to be used. ElCom has not yet decided how the 2014 and 2015 proceeds are to be used.

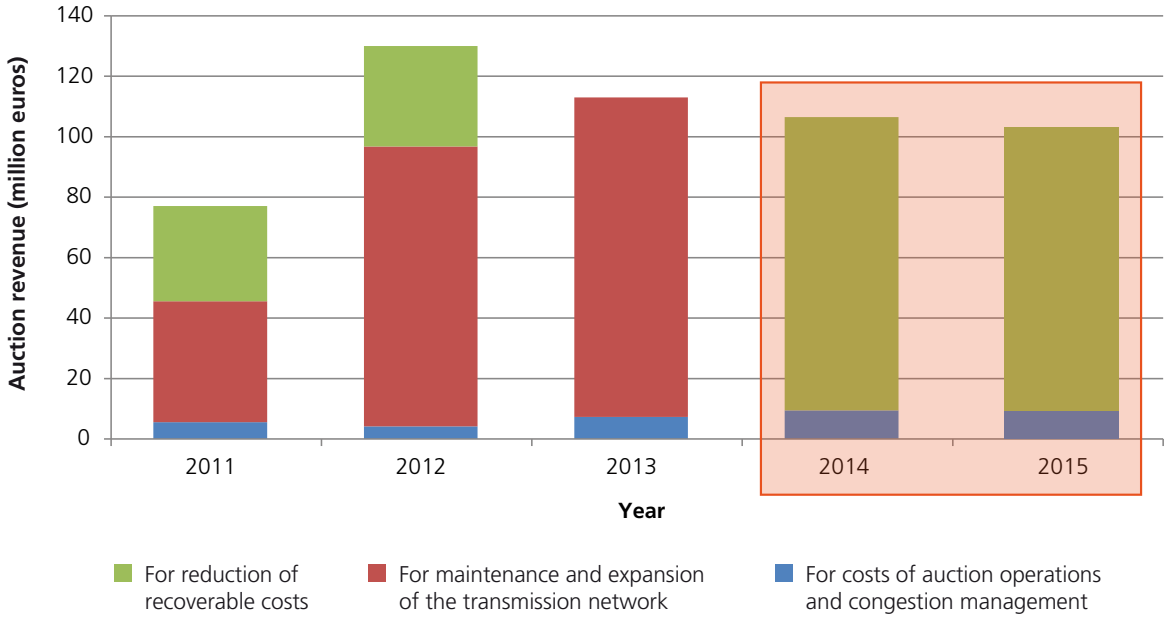


Figure 14: Use of the auction proceeds from 2011 to 2013 and use requested by Swissgrid of the proceeds from 2014 and 2015 (red background = not yet decided by ElCom)

6.5 International bodies

Switzerland is firmly integrated into the European electricity network. In order to represent Switzerland's interests at the international level, ElCom is involved in a variety of international committees and organisations. At meetings of the ACER Electricity Stakeholder Advisory Group, debates were held on a number of comprehensive issues relating to the EU electricity market and the associated EU legislation that is currently being prepared and implemented, which directly influence Switzerland. ElCom participated in these meetings as an observer. Within the scope of the reorganised cooperation, an agreement was concluded with ACER that grants Switzerland observer status within the ACER Electricity Working Group and its affiliated bodies.

ACER published its annual report on the monitoring of the internal electricity and gas markets, for which ElCom supplied a considerable quantity of data. The report notes that increasing use is being made of the coupling process in the EU, whereas Switzerland is lagging behind due to its lack of market integration. Switzerland's integration requires the conclusion of a bilateral agreement with the EU. In addition, the unplanned load flows are preventing better integration. ElCom also participated in certain activities of the Council of European Energy Regulators (CEER), specifically in association with the REMIT Regulation, supply quality and cyber security in the energy sector.

Cooperation with Switzerland's immediate neighbours is also essential, and for this purpose the Pentalateral Energy Forum (PLEF), in which ElCom is also actively involved, is an important body. Here the focus is on supply security and the use of flexible production. In 2015, the PLEF was able to conclude a unique study on the comprehensive interregional availability of production capacities, which examined in great detail how electricity shortages can be prevented through regional cooperation. In addition, a study on flexibility in electricity production was also initiated, in which Switzerland has a strong involvement. This study sets out to evaluate electricity supply security in a future characterised by the use of renewable energy, based on the assumption of more flexible consumption and more flexible production, as demonstrated by Swiss hydropower producers.

ElCom is also a member of the International Confederation of Energy Regulators, and is closely monitoring the activities of the OECD relating to the independence of regulators.

6.6 Network codes

One of the main areas of focus of the third package of measures for the liberalisation of the European energy market concerns the development of EU-wide network codes and binding guidelines of the EU Commission. Network codes and guidelines will set uniform standards for cross-border networks and market integration, for example in the areas of network operation, connection to the network, congestion management and reserve energy. The objective here is to create a common European electricity market with equal rights and obligations for all market participants. The network codes and guidelines are based on Regulation (EC) No. 714/2009, and for EU member states they have the same binding effect as an EU Directive. These network codes will specify explicit duties and responsibilities on the part of the regulatory authorities of EU member states and, although EU legislation is not binding for Switzerland, it is of relevance to Swiss players active in the European internal electricity market. The network codes and guidelines are to be divided into three sections:

Connection codes:

- The "Requirements for Generators" network code is to specify the technical requirements on generating facilities with a view to the future demands on the electricity supply network. They therefore represent an important component for the specification of system security.

- In the "Demand Connection" code the demand-side technical requirements for distribution network operators and major consumers are to be defined. This means its main purpose will be to specify the standards for guaranteeing supply security.

- The "High Voltage Direct Current" code will regulate the special requirements on the network connection of DC installations, with particular reference to DC connection of offshore wind parks and DC transit lines.

Network operation codes and guidelines:

- During the preparation of the "Operational Security", "Operational Planning and Security" and "Load Frequency Control and Reserves" network codes, it was decided to combine these three codes into a set of guidelines called "System Operation". These guidelines regulate all aspects that are necessary for securing the operation of a European network.

- The "Emergency and Restoration" network code is to specify the rules for the operational procedures for the transmission network operators in emergency situations.

Market regulation guidelines:

- The "Capacity Allocation and Congestion Management" guidelines represent the most important guidelines for the regulation of the European internal electricity market. They specify the roles, responsibilities and division of costs associated with the coupling of day-ahead and intraday trading, which is also regulated in this document. They also specify the main principles relating to congestion management, e.g. methods for calculating capacities and formation of cooperation zones.

- Based on the above guidelines, the "Forward Capacity Allocation" guidelines regulate the framework market conditions for the award of long-term cross-border transmission network capacities.

- The aim of the "Electricity Balancing" guidelines is to define regulations governing the development, implementation and operation of a European reserve energy market.

As the first regulation of this kind, the "Central Capacity Allocation and Congestion Management" guidelines entered into effect on 14 August 2015. In addition, during the year under review the following four regulations were adopted by the member states in the EU legislative process: "Network Code on Requirements for Grid Connection Applicable to all Generators" (26 June 2015), "Network Code on HVDC Connections" (11 September 2015), "Network Code on Demand Connection" (15 October 2015) and "Network Code on Forward Capacity Allocation" (30 October 2015). If the European Council and the European Parliament do not veto them, these regulations are expected to enter into effect in the first quarter of 2016.

7 Outlook

ElCom will continue to focus strongly on supply security in 2016. On the one hand, it plans to publish a new edition of its 2014 report on supply security, and on the other hand the problems that occurred in winter 2015/16 shall be carefully analysed. In this context, ElCom will take medium- and long-term measures and precautions in order to maintain Switzerland's supply security over the long term. For this purpose, additional monitoring criteria and scenarios will be required.

ElCom's monitoring of wholesale electricity trading will become operational in 2016. Here, ElCom will have concluded the technical and procedural prerequisites to such an extent that it will be able to monitor, analyse and evaluate wholesale transactions in real time.

With regard to the transmission network, ElCom expects the last remaining installations of the "contributors in kind" to be transferred to Swissgrid (a number of rulings are to be pronounced concerning the regulatory valuation of these installations). It also expects the pending issues relating to the valuation of the transmission network to be definitively clarified in the course of 2016. This concerns the valuation of those installations at network level 1, which the former owners of the transmission network had to transfer to Swissgrid in accordance with Article 33 of the Federal Electricity Supply Act. ElCom had already ruled in September 2012 that this transfer value has to correspond to the regulatory value as specified in the above Act, but this was rejected by the relevant courts. In this context, a close eye needs to be kept on the effects on tariffs for end consumers.

One of the main tasks in 2016 will be to conclude or make significant progress with the still pending legal proceedings, especially those relating to tariffs. Here, proceedings relating to transmission network tariffs will be of relevance: ElCom had pronounced a variety of rulings for the period from 2009 to 2012 regarding network valuation, some of which were reversed by the Federal Administrative Court or the Federal Supreme Court. Also, various proceedings relating to the distribution network were suspended in the past due to pending court hearings and, as a result, a number of these proceedings have been dragged out for many years. Now that all pending issues relating to network valuation have been clarified, these proceedings can at last be brought to a conclusion. However, in view of a still pending legal dispute in the area of energy, other proceedings or parts thereof have to be suspended.

The first years of ElCom's activity have demonstrated how important it is for legislation to be formulated clearly and comprehensibly and to grant scope for manoeuvre for the regulator with regard to technical issues. In view of this, ElCom intends to continue to actively participate in the discussions on the revision of Switzerland's electricity supply legislation. Its objective is to more clearly distinguish customers with basic supply in relation to the market, especially in the area of energy, and to adopt a clear stance concerning supervision and the legitimisation of appeals. ElCom also intends to focus on additional aspects associated with the Sunshine Regulation and competition. In the context of the ongoing discussions relating to "market design" and the shaping of electricity supply legislation, longer-term deliberations and input on the part of the regulator will also be required in the future.

8 About ElCom

ElCom, from left to right: Laurianne Altwegg, Antonio Taormina (Vice President), Matthias Finger, Brigitta Kratz (Vice President), Carlo Schmid-Sutter (President), Anne d'Arcy, Christian Brunner

ElCom is responsible for monitoring the Swiss electricity market and securing compliance with the Federal Electricity Supply Act. As an independent state supervisory authority, ElCom plays an active role in the transition from a monopolistic electricity supply system to a competition-based electricity market. One of its duties is to monitor electricity tariffs for end consumers with basic supply. It also ensures that the network infrastructure is properly maintained and expanded as needed in order to guarantee future supply.

ElCom has been entrusted with wide-ranging competencies for performing the following duties in particular:

- Examining the lawfulness of network use remuneration: In the liberalised market, the use of the networks for electricity transmission is compensated via network use remuneration.

- Supervision of electricity tariffs for fixed end consumers (basic supply, households and other end consumers with an annual consumption below 100 MWh) and all end consumers who choose not to gain access to the network.

- Ruling on disputes associated with free access to the electricity network: With effect from 1 January 2009, large-scale consumers (i.e. those with an annual consumption of at least 100 MWh) have been able to freely choose their electricity supplier.

- Ruling on disputes relating to remuneration at cost for feed-in to the grid, which was introduced on 1 January 2009 for producers of electricity from renewable energy sources.
- Monitoring electricity supply security and the status of the electricity networks.
- Defining the procedures for the allocation of network capacity in the event of congestion in cross-border transmission lines and coordinating its activities with European electricity regulators.
- Comprehensive supervision of the national grid operator (Swissgrid) now that the ownership of the transmission network has been transferred to the latter (separation process).
- Supervision of wholesale electricity trading.

8.1 Organisation and personnel

ElCom comprises five to seven independent members appointed by the Federal Council, plus a Technical Secretariat. It is not subject to any directives of the Federal Council and is independent of the administrative authorities.

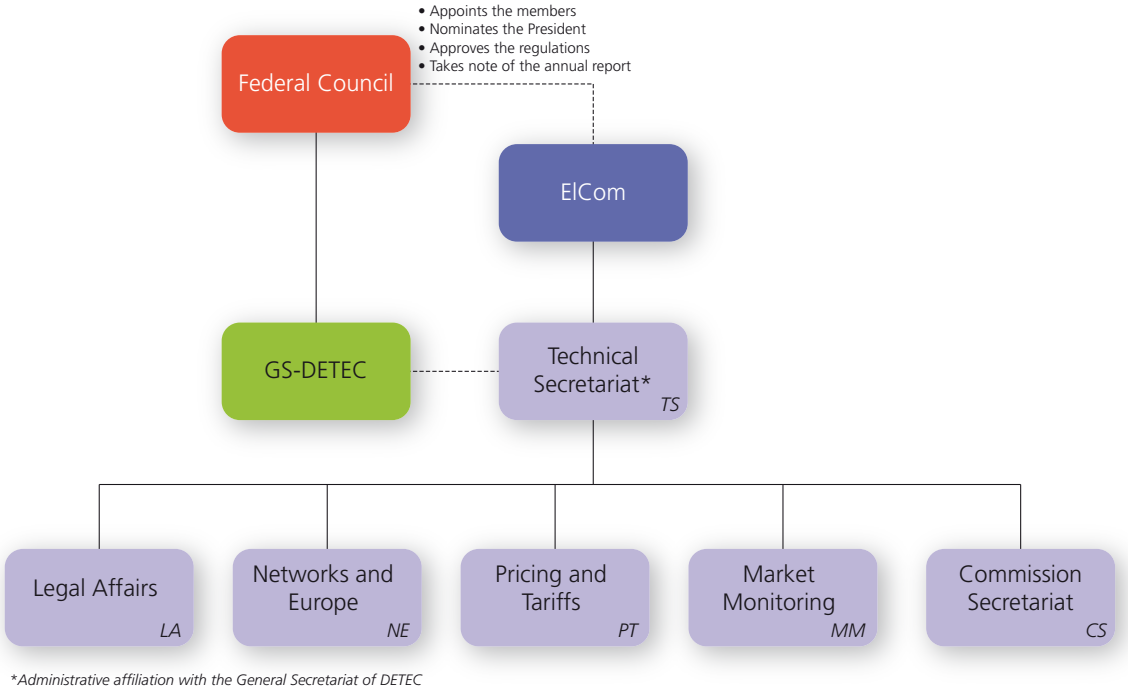


Figure 15: Structure of ElCom

8.1.1 The Electricity Commission

The seven Commission members are independent of the electricity industry, and they all act on a part-time basis. On average, the Commission holds a plenary meeting once a month, and its members also attend meetings of the four committees: "Pricing and Tariffs", "Networks and Supply Security", "Legal Affairs" and "International Relations".

In the year under review, the composition of the Commission was as follows:

President:

- Carlo Schmid-Sutter (since 2007): former member of the Council of States, attorney-at-law and notary public

Vice Presidents:

- Brigitta Katz (since 2007): attorney-at-law, tutor in private law at the University of St Gallen and lecturer in energy law at the Zurich University of Applied Sciences (ZHAW)
- Antonio Taormina (since 2014): mathematics degree, Federal Institute of Technology, Zurich, former member of the management board and head of Energy Western Europe at Alpiq

Members:

- Laurianne Altwegg (since 2015): degree in political science, responsible for energy, environment and landscape at the Western Switzerland Consumers Association (FRC)
- Anne d'Arcy (since 2007): Professor of Corporate Governance and Management Control, Vienna University of Economics and Business
- Matthias Finger (since 2007): PhD (political science), Professor of Management of Network Industries at the Federal Institute of Technology, Lausanne
- Christian Brunner (since 2014): degree in electrical engineering, Federal Institute of Technology, Zurich, former director of Alpiq Networks Business Unit

Committees

In the year under review, the Commission operated the following committees:

Prices and Tariffs

- Anne d'Arcy (chair)
- Laurianne Altwegg
- Christian Brunner
- Carlo Schmid-Sutter

Legal Affairs

- Brigitta Kratz (chair)
- Laurianne Altwegg
- Carlo Schmid-Sutter

Networks and Supply Security

- Christian Brunner (chair)
- Matthias Finger
- Brigitta Kratz
- Carlo Schmid-Sutter

International Relations

- Antonio Taormina (chair as of 1.9.2015)
- Matthias Finger (chair until 31.8.2015)
- Brigitta Kratz
- Christian Brunner

Market Monitoring

- Matthias Finger (chair as of 1.9.2015)
- Christian Brunner
- Carlo Schmid-Sutter
- Antonio Taormina (chair until 31.8.2015)

Resignations and new appointments

On 22 June 2015 the Federal Council appointed Laurianne Altwegg as a member of the Commission. She replaces Aline Clerc, who stepped down as a member of ElCom as of the end of 2014.

At its meeting on 25 November 2015, the Federal Council elected all members of ElCom for the period from 2016 to 2019.

Regulations

An authority's reputation and credibility largely depend on the trust that is placed in it so any sign of partiality has to be avoided. In view of this, ElCom examined the question of which regulations are required governing the behaviour of the members of the Technical Secretariat. In the year under review, ElCom carried out a detailed review of its activities and, in addition to regulations for its committees, it also compiled rules governing impartiality that are specific to ElCom and its internal structure and which supplement the already applicable federal regulations and code of behaviour for personnel of the Federal Administration.

Representation of gender and language regions

ElCom comprises three women and four men, i.e. its representation of women is equivalent to 43 percent. The official target of the federal government is 30 percent – on average, 39 percent of the members of Switzerland's extra-parliamentary commissions are women. In terms of representation of language regions, the composition of ElCom is currently as follows: German-speaking region, four people; French-speaking region, two people; Italian-speaking region, one person. The proportions are therefore 57,29 and 14 percent respectively. The official target of the federal government is to achieve an overall representation of French-, Italian- and Romansh-speaking personnel of 40 percent. The average distribution in extra-parliamentary commissions is currently 65,1 percent for German, 25,5 percent for French, 8,6 percent for Italian and 0,8 percent for Romansh.

Key data relating to the electricity sector

ElCom is responsible for supervising wholesale electricity trading and the electricity sector, including Swissgrid, with respect to network use tariffs, electricity tariffs for fixed end consumers, supply security, status of the electricity networks and allocation of capacities in the event of congestion at the country's borders.

Number of network operators in 2015: approximately 670
Number of network levels: 7
Length of electricity networks: network level 1 – approx. 6700 km | network level 3 – approx. 9000 km | network level 5 – approx. 44'000 km | network level 7 – approx. 139'000 km (overhead lines and underground cables)
Number of transformers: network level 2 – 152 | network level 4 – 1145 | network level 6 – approx. 58'000 (including mast transformers)

Total amount of network use remuneration in 2015: 4 billion Swiss francs
Annual investments: approx. 1,4 billion Swiss francs
Annual electricity consumption: 57 TWh
Production: 66 TWh
Electricity imports: 36 TWh | **Electricity exports:** 38 TWh

8.1.2 Technical Secretariat

The Technical Secretariat provides the Commission with technical and specialised support and prepares ElCom's decisions and implements them. It conducts administrative proceedings and carries out the necessary clarifications. It is independent of any other authorities and is solely subject to the directives of the Commission. At the administrative level, the Technical Secretariat is affiliated with the General Secretariat of the Federal Department of the Environment, Transport, Energy and Communications (DETEC). The Commission Secretariat is ElCom's central contact point for the general public, the electricity industry and the media. It coordinates the activities of the Commission and Technical Secretariat and provides the Commission with administrative support.

As of 31 December 2015, the Technical Secretariat employed 42 personnel (17 women, 25 men, including 3 trainees). The average age of all employees was 42. Breakdown by national language:

- Italian: 3 employees
- French: 7 employees
- German: 32 employees

Head of the Technical Secretariat (42 employees)

Renato Tami
attorney-at-law
and notary public

Networks and Europe (9 employees)

Michael Bhend
engineer (Federal Institute of Technology, Zurich)

Pricing and Tariffs (12 employees)

Stefan Burri
PhD in political science

Market Monitoring (5 employees)

Cornelia Kawann
degree in engineering, MBA

Legal Affairs (10 employees)

Nicole Zeller
attorney-at-law

Commission Secretariat (6 employees)

Barbara Wyss
PhD in economics

8.2 Finance

In the year under review, ElCom had a budget of 11,3 million Swiss francs at its disposal. Its effective expenditure amounted to 10,4 million Swiss francs, which covered its entire personnel and operating costs, including the additional expenditure associated with the development of its market monitoring activities.

On the income side, ElCom received a total of 5,1 million Swiss francs, the main sources of which were payments of supervisory fees by Swissgrid for ElCom's cooperation with foreign authorities and court costs paid by parties involved in legal proceedings.

8.3 Events

8.3.1 2015 ElCom Forum

The sixth ElCom Forum was held on 20 November 2015 at the Congress Centre in Basel. It was entitled, "How much regulation does Switzerland's electricity sector need?" and focused on the current debate concerning the planned revision of the existing electricity supply legislation, the proposed new energy policy ("Energy Strategy 2050") and the activities of electricity suppliers and their impacts on consumers. On the basis of specific examples, the opportunities and challenges associated with a changing regulatory environment were examined against a backdrop of difficult economic conditions. Once again, ElCom was especially pleased to welcome Federal Councillor Doris Leuthard to the Forum as a keynote speaker, and leading figures from the electricity sector addressed an audience of more than 370 specialists.

The 2016 ElCom Forum will be held on Friday 18 November in Winterthur.

8.3.2 Information events for network operators

In the year under review, ElCom held ten information events at various locations in Switzerland. The main topics were the "Sunshine Regulation", network costs and ongoing legal issues. In addition, the Swiss Federal Office of Energy (SFOE) gave a presentation on significant developments in the area of Swiss energy policy. A total of around 700 people attended these events, which were offered on a non-profit basis. The events provided a welcome opportunity for the participants, as well as the involved ElCom and SFOE personnel, for exchanging professional views and experiences.

9 Appendix

9.1 Facts and figures

A total of 534 new cases were received in 2015. Slightly less than half of these concerned applications for increasing network capacity, which as of 2015 are listed as a separate category. In the year under review, 611 cases were brought to a conclusion.

In addition, the number of basic enquiries was also recorded for the first time in 2015. These involve enquiries submitted via the contact form on the ElCom website or by e-mail and which deal with routine matters. Handling these normally takes a few hours and occasionally an enquiry may lead to proceedings. In view of this, these enquiries have not been included in the table below. In 2015, the Technical Secretariat dealt with a total of 242 such enquiries.

Complaints, etc.	Brought forward from previous years	Received in 2015	Dealt with in 2015	Carried forward to 2016
Specific matters relating to tariffs	82	125	133	74
Feed-in remuneration at cost	70	78	79	69
Increases in network capacity	n.a.	217	122	95
Other cases	377	114	277	214
Total	529	534	611	452

Table 8: ElCom activities: statistics for 2015

9.2 Appeal statistics

A total of 253 rulings were pronounced in 2015, a large proportion of which concerned applications for increased network capacity. ElCom pronounced a total of 652 rulings in the period from 2008 to 2015, 569 of which were not contested and were thus declared legally binding. The remainder were referred to the Federal Administrative Court or the Federal Supreme Court.

	No appeal	Appeals to the Federal Administrative Court	Appeals to the Federal Supreme Court
652 pronounced rulings from 2008 to 2015	569	83	27

Table 9: Rulings pronounced between 2008 and 2015

9.3 Meetings

The managers of ElCom attend monthly plenary meetings. In addition, the four committees hold their own meetings, and ElCom also organises workshops and other extraordinary meetings. In the year under review, the members of ElCom attended a total of 14 full-day and 28 half-day meetings within Switzerland, in various configurations.

9.4 Publications (in national languages only)

9.4.1 Directives

19.11.2015	2/2015 – Netzverstärkungen
15.10.2015	1/2015 – Pflicht der Netzbetreiber zur Erfassung und Einreichung der Daten über die Versorgungsqualität im Jahr 2016

9.4.2 Notifications

26.11.2015	Tarife bei getrennten Versorgungsgebieten mit gleichem Netzbetreiber
03.11.2015	Messkosten und Zugriff auf Messdaten
11.03.2015	Stellungnahme ElCom zu Vernehmlassung BFE zur Strategie Stromnetze
26.02.2015	95-Franken-Regel
03.02.2015	Messung der Spannungsqualität

9.4.3 Rulings

22.01.2015	Merchant Line Campocologno-Tirano, Neufestlegung Ausnahmekapazität (Teilverfügung)
22.01.2015	Repower AG, Repower Schweiz AG: Teilverfügung Energiekosten
22.01.2015	Energie Seeland AG, Abschlussschreiben Energietarife 2011–2013
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Rodels
22.01.2015	Verfügung zu Weitergehende Netzverstärkung […] Seedorf
22.01.2015	Verfügung zu Weitergehende Netzverstärkung […] Balerna
22.01.2015	Verfügung zu Weitergehende Netzverstärkung […] Seedorf
22.01.2015	Accès au réseau, clôture de la procédure
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Paspels
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Bettlach
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Gampelen
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Asuel
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Latterbach
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Stadt Gossau
22.01.2015	Verfügung zu Vergütung Netzverstärkung […] Besencens
12.02.2015	Verfügung zu Neuverfügung Kosten und Tarife Netzebene 1 2012 Übertragungsnetz Basel AG, IWB, Swissgrid AG
12.02.2015	Verfügung zu Vergütung Netzverstärkung […] Bussnang
12.02.2015	Verfügung zu Vergütung Netzverstärkung […] Winden
12.02.2015	Verfügung zu Vergütung Netzverstärkung […] Affeltrangen
12.02.2015	Verfügung zu Vergütung Netzverstärkung […] Mosnang
12.02.2015	Verfügung zu Vergütung Netzverstärkung […] Erlenbach i.S.
12.02.2015	Verfügung zu Vergütung Netzverstärkung […] Lamboing
12.02.2015	Verfügung zu Renforcement de réseau Indemnisation des coûts de renforcement de réseau pour l'installation PV […]
12.02.2015	Verfügung zu Merchant Line Merchant Line Mendrisio-Cagno, Neufestlegung Ausnahmekapazität (Berichtigung)
18.02.2015	Verfügung zu Vorrang im Übertragungsnetz; Vorsorgliche Massnahme Netzverstärkung […]
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Trub

10.03.2015	Verfügung zu Vergütung Netzverstärkung […]
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Steinmaur
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Oberkirch
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Beromünster
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Tuggen
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Buttisholz
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Alten
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Ittigen
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Mittelhäusern
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Arlesheim
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Biel-Benken
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Eich
10.03.2015	Verfügung zu Vergütung Netzverstärkung […] Erschwil
10.03.2015	Verfügung zu Renforcement de réseau Indemnisation des coûts de renforcement de réseau pour l'installation PV […] L'Auberson
10.03.2015	Renforcement de réseau Indemnisation des coûts de renforcement de réseau pour l'installation PV […] Seigneux
10.03.2015	Renforcement de réseau Indemnisation des coûts de renforcement de réseau pour l'installation PV […] Puidoux
10.03.2015	Renforcement de réseau Indemnisation des coûts de renforcement de réseau pour l'installation PV […] Brot-Plamboz
10.03.2015	Verfügung zu Netzanschlussbedingungen einer PV-Anlage; Zwischenverfügung, Nichteintreten auf erneutes Gesuch vorsorgliche Massnahme
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Hagenwil
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Illnau
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Biel-Benken
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Hohentannen
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Wiedlisbach
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Oberdürnten
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Greifensee
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Wolfhausen
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Samstagern
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Gais
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Solothurn
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Ernetschwil
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Amden
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Lyssach
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Opfershofen
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Bonstetten
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Zweisimmen
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Rain
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Ruswil
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Hildisrieden
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Oberlindach
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Bözen
08.04.2015	Verfügung zu Vergütung Netzverstärkung […] Bächli

19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Energie AG Rüttenen
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Mauren
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Bazenheid
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Eschenbach
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Melchnau
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Rüti
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Worblaufen
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Hausen a. Albis
19.05.2015	Verfügung zu Vergütung Netzverstärkung […] Oberwangen
19.05.2015	Verfügung zu RPC – intégration PV – toiture partielle […]
19.05.2015	Verfügung zu GKW Säckingen
19.05.2015	Verfügung zu GKW Ryburg-Schwörstadt
19.05.2015	Verfügung zu GKW Rheinfelden
11.06.2015	Verfügung zu Einspeisepunkt PV-Anlagen […]
11.06.2015	Verfügung zu Vergütung Netzverstärkung, gemeinsames Gesuch […] Hergiswil
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Unterlunkhofen
11.06.2015	Verfügung zu Weitergehende Netzverstärkung […]
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Niederbipp
11.06.2015	Verfügung zu Vergütung Netzverstärkung […]
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Furna
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Oltigen
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Niederbipp
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Uerzlikon
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Schüpfen
11.06.2015	Verfügung zu Vergütung Netzverstärkung […] Porrentruy
11.06.2015	Verfügung zu KEV, Kategorisierung PV-Anlage […]
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Chevenez
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Alle
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Jonen
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Scheunen
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Rain
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Hettiswil
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Wil
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Fällanden
02.07.2015	Verfügung zu Vergütung Netzverstärkung […]
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Tenniken
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Kernenried
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Knutwil
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Steinhuserberg
02.07.2015	Verfügung zu Vergütung Netzverstärkung […] Steinen
02.07.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts KHR
02.07.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts Ofible

02.07.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts Ofima
02.07.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts SBB
02.07.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts KSL
02.07.2015	Verfügung zu KEV Widerrufsbescheid der Swissgrid AG betr. Landwirtschaftsbonus, Oberle
02.07.2015	Verfügung zu Vorrang GKW Reckingen
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Eischoll
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Amlikon-Bissegg
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Oberbuchsiten
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Kulmerau
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Entlebuch
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Uffikon
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Amriswil
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Altishofen
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Hildisrieden
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Buttisholz
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Hagenbuch
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Wettswil a.A
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Hagenbuch
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Knonau
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Zeglingen
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Hedingen
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Gelfingen
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Ruswil
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Hildisrieden
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Eich
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Rickenbach
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Grosswangen
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Bachs
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Steinmaur
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Gisikon
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Sempach-Station
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Ruswil
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Berg
13.08.2015	Verfügung zu Vergütung Netzverstärkung […] Schnottwil
13.08.2015	Verfügung zu Renforcement de réseau […]
13.08.2015	Verfügung zu Vorrang im grenzüberschr. Übertragungsnetz […]
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts AET
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts KVR

13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts KWM
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts KLL
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts AEK
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts FMM
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts Alstom
13.08.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts EKW
13.08.2015	Verfügung zu KEV, Kategorisierung PV-Anlage […] gegen Swissgrid
09.09.2015	Verfügung zu Aktienverkaufs Swissgrid AG – Superprovisorische Massnahmen
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Oberriet
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Steffisburg
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Etziken
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Diessbach bei Büren
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Steg
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Gutenswil
17.09.2015	Verfügung zu Vergütung Netzverstärkung […] Würenlingen
17.09.2015	Verfügung zu RPC […]
17.09.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts EKW (teilweise Wiedererwägung)
17.09.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts KWI
17.09.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts Axpo Power AG
17.09.2015	Verfügung zu regulatorischer Anlagewert NE1 Festlegung des regulatorischen Anlagewerts AVAG
17.09.2015	Verfügung zu Tarifprüfung Teilverfügung Tarife Netz 2008, 2009 und 2010 SIL
15.10.2015	Verfügung zu Aktienverkauf Swissgrid AG SIRESO, Swissgrid AG et al: Verkauf Aktien Swissgrid AG ‚Vorkaufsrechte: Prov. Massnahmen
15.10.2015	Verfügung zu Tarifprüfung 2009/10, N&E Zwischenverfügung Sistierung Verfahren ewb
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Roggliswil
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Sevgein
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Niederglatt
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Willisau
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Hundwil
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Ulrichen
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Schüpfheim
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Altishofen
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Buttisholz
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Sempach
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Rickenbach

15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Aeugst am Albis
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Turbenthal
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Urdorf
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Schangnau
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Bäretswil
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Mühleberg
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Gstaad
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Heimisbach
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Saanen
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Kriechenwil
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Orpund
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Dotzigen
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Schongau
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Sigigen
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Horw
15.10.2015	Verfügung zu Vergütung Netzverstärkung […] Neuenkirch
15.10.2015	Verfügung zu Messdienstleistungen […]
19.11.2015	Verfügung zu Netzgebiete: Situation Netzebene 3 Davos-Prättigau
19.11.2015	Verfügung zu Netzbewertung 2010 Netzbewertung EWG Grindelwald 2010: Abschlussschreiben
19.11.2015	Verfügung zu Neuregelung Gebühren KEV […]
19.11.2015	Verfügung zu KEV, PV-Anlage […]
19.11.2015	Verfügung zu KEV/EIV, PV-Anlage […]
19.11.2015	Verfügung zu RPC […]
19.11.2015	Verfügung zu Technische Anschlussbedingungen […]
19.11.2015	Verfügung zu Grenzstelle […] – Verschiebung Grenzstelle
19.11.2015	Verfügung zu Vorrang im grenzüberschreitenden ÜN Energiedienst Holding AG gegen Swissgrid (GKW Laufenburg)
19.11.2015	Verfügung zu Vorrang im grenzüberschreitenden ÜN Kraftwerke Hinterrhein, Swissgrid
19.11.2015	Verfügung zu Vergütung für weitergehende Netzverstärkung […]
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Remetschwil
19.11.2015	Verfügung zu Vergütung Netzverstärkung […]
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] St. Niklaus VS
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Steinerberg
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Safiental
19.11.2015	Verfügung zu Vergütung Netzverstärkung […]
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Muri
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Oberriet
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Hünenberg
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Benken
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Dietschwil
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Meinkirch
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Ruswil
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Studen
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Schüfpen

19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Zäziwil
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Solothurn
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Rubigen
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Rüfenacht
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Tecknau
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Hasle b. Burgdorf
19.11.2015	Verfügung zu Vergütung Netzverstärkung […] Boll
17.12.2015	Verfügung zu Rückerstattung Netzzuschlag PSI gegen BFE
17.12.2015	Verfügung zu Netzkosten Repower AG: Abschlussschreiben Netzkosten
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Baden
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Bannwil
17.12.2015	Verfügung zu Vergütung Netzverstärkung […]
17.12.2015	Verfügung zu Vergütung Netzverstärkung […]
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Madiswil
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Marbach SG
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Winterthur
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Mülligen
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Ruswil
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Zell
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Gelfingen
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Grosswangen
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Dagmersellen
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Bière
17.12.2015	Verfügung zu Vergütung Netzverstärkung […] Bannwil
17.12.2015	Verfügung zu KEV, PV-Anlage […]

9.4.4 Other court rulings

Rulings of relevance to the activities of ElCom

Rulings of the Federal Administrative Court

06.03.2015	A-910/2014 Verzugszinsen auf der Rückerstattung für im Jahr 2010 geleistete ITC-Mindererlös-Akontozahlungen
06.03.2015	A-129/2014, A-134/2014, A-174/2014, A-178/2014, A-179/2014, A-207/2014, A-1589/2014, A-1594/2014, A-1998/2014, A-4626/2014, A-4636/2014 Verzinsung der Akontozahlungen SDL für die Tarifjahre 2009 und/oder 2010 geleistete SDL-Akontozahlungen

30.04.2015 A-2768/2014
Beurteilung des Bescheids der Swissgrid AG vom 8. August 2012 über die Anmeldung zur kostendeckenden Einspeisevergütung für die KEBAG Zuchwil

21.05.2015 A-2901/2014
Rétribution à prix coûtant du courant injecté (RPC)

28.05.2015 A-2850/2014
Anschluss Fideriser Heuberge; Zuständigkeit zur Festlegung der Netzanschlusskosten und Netzkostenbeiträge

03.06.2015 A-1107/2013
Rechtsverweigerung. Überprüfung anrechenbare Energiekosten für das Geschäftsjahr 2008/2009

17.09.2015 A-4730/2014
Bescheid über die definitive Höhe der KEV; Kategorisierung einer Photovoltaikanlage

28.09.2015 A-1255/2015
Merchant Line Campocologno (CH) – Tirano (IT): Neufestlegung der Ausnahmekapazität

13.11.2015 A-213/2015, A-257/2015
Gesuch um Gewährung des Netzzugangs und Zurverfügungstellung der für die Abrechnung der Stromlieferung notwendigen Messdaten und Informationen

08.12.2015 A-84/2015
Bescheid über die definitive Höhe der KEV; Kategorisierung der Photovoltaikanlage

Rulings of the Federal Supreme Court

09.02.2015 2C_300/2014
Elektrizitätsleistungen zur Feinverteilung

25.03.2015 2C_527/2014, 2C_478/2014, 2C_479/2014
Kosten und Tarife 2009, 2010 und 2011 für die Netznutzung Netzebene 1 und Systemdienstleistungen; Kosten- und Entschädigungsregelung

04.06.2015 2C_1076/2014
Kosten und Tarife 2009 für die Netznutzung Netzebene 1 und Systemdienstleistungen/Neufestsetzung anrechenbare Kosten

16.07.2015 2C_857/2014
Entschädigung für Elektrizitätsleitungen mit kleiner räumlicher Ausdehnung zur Feinverteilung

9.5 Abbreviations and glossary

ACER	EU Agency for the Cooperation of Energy Regulators
AESAG	ACER Stakeholder Advisory Group
Balance energy	Electricity that is billed in order to balance the difference between the effective quantity purchased or supplied to a balance group and the quantity purchased or supplied in accordance with the timetable.
Balance group	Formal grouping of participants in the electricity market for the purpose of forming a common measurement and billing unit within control zone Switzerland for the purposes of the national network operator.
Balance management	Measures for constantly maintaining the electricity and capacity balance in the electricity system. It includes time-table management, data measurement and balance compen-sation management.
CEER	Council of European Energy Regulators
Congestion management	Ensures that the secure operation of the network can be maintained through preventive measures (e.g. NTC specification, capacity auctions) and operational measures (e.g. redispatch, reductions).
Control zone	Zone in which the national grid operator is responsible for network control. This zone is physically defined through measurement stations.
Day-ahead trading	Trading of energy on the day prior to its effective delivery or purchase.
DETEC	Federal Department of the Environment, Transport, Energy and Communications
Distribution network	High, medium or low voltage network for the purpose of supplying electricity to end consumers or electricity supply companies.
ElCom	Federal Electricity Commission
End consumers	Clients who purchase electricity for their own consumption. This does not include power plants that buy electricity for

	their own consumption and for powering pumps in pump storage power plants.
ENTSO-E	European Network of Transmission System Operators for Electricity
ERRA	Energy Regulators Regional Association
ESTI	Federal Inspectorate for Heavy Current Installations
EU	European Union
FONES	Federal Office for National Economic Supply
ICER	International Confederation of Energy Regulators
Inter TSO Compensation ITC	Compensation mechanism between participating transmission system operators for the network use costs associated with cross-border supplies of electricity.
Intraday trading	In intraday trading, short-term transactions are carried out after closure of day-ahead trading in order, for example, to be able to respond to deviations of the load from the forecast level or to failures of power plant blocks and thus to reduce the deviation from the timetable.
N-1 safety concept	This concept ensures that, in the event of any failure of a network element, the remaining elements are not subjected to an inadmissible load. The calculation of n-1 loads is carried out in advance in the form of a simulation.
Net transfer capacity (NTC)	Maximum exchange programme between two network zones that is reconcilable with the safety standards of both zones and which takes technical uncertainties regarding future network situations into account.
Network access	Right to use a network in order to obtain electricity from any supplier or to feed electricity into a network.
Network use	Physical use of a network system based on feed-in or withdrawal of electricity.

OECD	Organisation for Economic Cooperation and Development
PLEF	Pentalateral Energy Forum
PV	Photovoltaics
REMIT	Regulation on Wholesale Energy Market Integrity and Transparency – Regulation (EU) No. 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency
Reserve energy	Power supply that can be drawn on automatically or manually by power plants to maintain the scheduled level of electricity exchange and ensure the continued safe operation of the network
SAIDI	The System Average Interruption Duration Index (SAIDI) indicates the average duration of interruptions in supply to an end consumer in an electricity supply system.
SAIFI	The System Average Interruption Frequency Index (SAIFI) indicates the average frequency of interruptions in supply to an end consumer in an electricity supply system.
SFOE	Swiss Federal Office of Energy
System services	Auxiliary services required for the safe operation of networks. These include in particular: system co-ordination, balance management, retention of reserve energy, self-contained start and independent operation capability of generators, maintenance of voltage level (including idle component), operational measurement and compensation of active current losses.
Transmission network	Network used for the transmission of electricity over large distances within the country and for connection to networks outside the country, usually operated within the range of 220 to 380 kV. The following items are integral parts of the transmission network: a) transmission lines and support structures; b) coupling transformers, switching systems and measurement, control and communication equipment; c) systems that are used jointly with other network levels, mainly in association with the transmission network or without which it is not possible to operate the transmission network safely and efficiently; d) switching fields before the transformer at the transfer point to another network level or a power plant.

WACC	Network use remuneration is a major component of an electricity tariff. It comprises operating costs and capital costs. For the capital that is already invested in existing electricity networks or invested in new electricity networks, the investor is entitled to receive interest. This is specified in an imputed interest rate, referred to as the weighted average cost of capital.
WFER	World Forum of Energy Regulators

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