

swissgrid

ANNUAL REPORT 2008

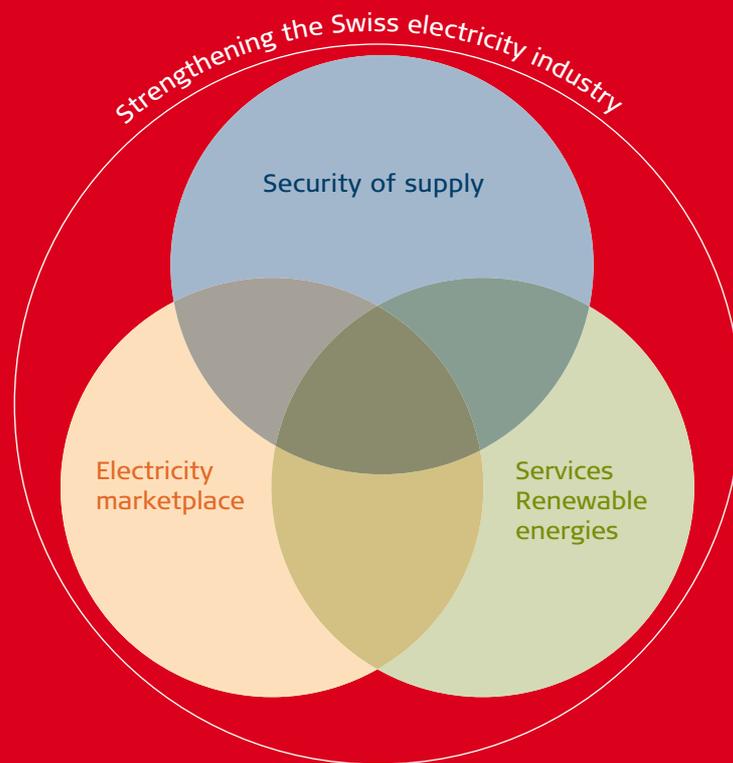
moving

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Core activities Switzerland



Security of supply

- Grid access
- Grid operation planning
- Grid management
- Grid control
- Grid expansion
- Congestion management

Electricity marketplace

- Balance group system
- Capacity allocation
- Auctions
- Grid usage
- Tenders

Services Renewable energies

- Implementing statutory requirements for dealing with renewable energies
- Managing additional cost financing
- Managing cost-covering remuneration for feed-in to the grid
- Issuing Swiss guarantees of origin

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"ENERGY TO LIVE. DAY AND NIGHT."

moving power – swissgrid is the national grid company, and in its capacity as transmission system operator it ensures the secure, reliable and cost-effective operation of the Swiss high-voltage grid. swissgrid employs around 240 skilled people from 12 countries at its sites in Laufenburg and Frick. As a member of the European Union for the Coordination of Transmission of Electricity (UCTE) and the European Transmission System Operators (ETSO), it is also responsible for grid coordination and grid usage in terms of the European exchange of electricity. swissgrid is wholly owned by the eight Swiss electricity companies Atel, BKW, CKW, EGL, EOS, ewz, NOK and RE.

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WHAT DOES SWISSGRID STAND FOR?

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The new Electricity Supply Act (StromVG), which came into force on 1 January 2008, calls for an independent organisation, the national grid company swissgrid. Its responsibilities are as follows:

- It operates and monitors the nationwide transmission system. It is responsible for planning and controlling the entire transmission system.
- It guarantees the provision of ancillary services (balance management, availability of control energy, non-discriminatory procurement of power plant capacities).
- In the event of a threat to stable grid operation, it orders the necessary measures.
- It prepares itself for dealing with congestion in the high-voltage grid, works together with foreign transmission system operators and represents Switzerland's interests on international committees.
- From 2013, it will be the owner of the grid which it operates.

The formation of swissgrid also fulfilled a key requirement of the European Union, namely that Switzerland has a national transmission system company in order to conduct bilateral negotiations on an electricity agreement.

Dear Reader

In swissgrid's third financial year, the focus has been squarely on establishing and developing all the activities required for a liberalised and market-oriented Swiss electricity market. We have reached some important milestones this year:

Launch of the new Swiss electricity market

In an ambitious project, the Swiss control area was put into operation at midnight on 31 December 2008. This change from what was originally eight control areas to just one is a prerequisite for a liberalised electricity market with non-discriminatory market access for all producers and distributors. The Swiss market for ancillary services was also successfully launched in accordance with legislation. This market provides a platform for swissgrid to procure the energy reserves required for grid management in a market-compliant auction process. In addition to numerous system changes, another focal point was the fact that, as of 1 January 2009, large customers with an annual consumption of more than 100 000 kWh can change their supplier.

Extensive preparations

Substantial preparations were required which affected numerous areas. In order to allow freedom of choice, swissgrid and other Swiss electricity companies defined new processes for the market, the majority of which are already standard in Europe. The successful implementation of the Electricity Supply Act turned the Swiss electricity industry, and with it almost 100 years of history, upside down, and laid a new foundation for the future which will give customers and the market a new role in ensuring the security of supply. In this respect, the subject of "grid usage" was a focal point. In the past, all electricity supply costs were combined and billed to the end user. In future, grid usage, energy, taxes and duties will be itemised separately on electricity bills, which means that completely new formats and processes will need to be defined for the exchange of energy data.

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Public responds to new electricity prices

As a result, swissgrid calculated the various costs of the transmission system in accordance with the legal requirements and incorporated them into individual and standard tariffs. These costs are passed on to all end customers by the distribution system operators. The response to the published grid tariffs showed that security of supply cannot be achieved without incurring costs. In addition to a capital share, these grid costs, which make up only a fraction of the total electricity price, cover the secure and sustainable operation, maintenance and expansion of the transmission system.

New control centre for increased grid security

To ensure that swissgrid maintains an overview of the Swiss and European transmission systems, work started in June on converting and redesigning the national transmission system control centre in Laufenburg. A comprehensive interim solution was put in place to cover the operation of the transmission system while the work was being carried out. The new control centre, which is equipped with the very latest system technology, will be operational by the end of 2009.

Uninterrupted operation

Modern systems and a professional, experienced team enable swissgrid to identify congestion in the transmission system early and give the necessary instructions regarding power and frequency control to the electricity producers in good time in order to guarantee grid security. As a result, despite various congestion situations in the transmission system, swissgrid reported no significant disruptions in the 2008 reporting period that could have severely impacted business or the community.

swissgrid promotes renewable energies on behalf of the Federal Government

Another challenge was establishing, implementing and managing activities to promote the production of electricity from renewable energies, and the introduction of cost-covering feed-in remuneration. We have received thousands of applications since 1 May 2008 and swissgrid has worked tirelessly to register all applicants and provide the remuneration as quickly as possible in accordance with strict guidelines. The cost-covering feed-in remuneration in the revised Energy Act focuses on supporting renewable energies and energy efficiency with the aim of reducing CO₂ emissions in Switzerland by 20% by 2020.

Greater independence of swissgrid

swissgrid also complied with legal requirements on an organisational level in 2008 and took its strategy in a new direction. My election as independent Chairman of the Board of Directors and the appointment of seven independent members and six industry representatives to the swissgrid Board of Directors meets the independence requirement stipulated in the Electricity Supply Act. In addition, the dissolution of the technical advisory committees that provided swissgrid with expert know-how especially during the initial preparation and development phases led to a weakening of the influence of the Swiss electricity companies and fewer potential con-

flicts of interest. In December 2008, the Federal Council approved swissgrid's articles of association, thus creating the legal framework for non-discriminatory, reliable and efficient operation of the electricity transmission system. We will be working with the Federal Government, the cantons and local authorities until mid-2009 on a proposal to establish how to secure the legally required majority holding of cantons and local authorities in swissgrid ag and therefore comply with independence requirements.

Strategic partnership with EnBW

On a strategic level, swissgrid made an important step towards improving cross-border grid operation by forming a joint venture company with EnBW, cesoc. Both companies already engage in joint grid activities on the German-Swiss border, which will be managed even more efficiently through cesoc. cesoc will play a particularly important role in monitoring grid security, and will begin its activities in 2009, coordinating grid security with other regions on a European level.

People

2008 was a most eventful and successful year for swissgrid. We achieved our targets despite rolling planning and implementation. This demanded a great deal of commitment and flexibility from employees, who once again helped shape the face of the company

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and contributed to the positive results in 2008 with their pioneering spirit, skills and tenacity. I would like to take this opportunity to thank them on behalf of the Board. And I would also like to thank three more people:

Konrad Peter, Chairman of the Board of Directors of swissgrid until 14 May 2008, who had to step down for health reasons and who always embraced his responsibilities with professionalism. Hans Schweickardt, who in accordance with the articles of association took over the fortunes of swissgrid as interim Vice Chairman of the Board, and Hans-Peter Aebi, the first CEO of swissgrid, who founded the national grid company and successfully managed the transition to the liberalised Swiss electricity market. Pierre-Alain Graf joined swissgrid on 1 December 2008 as designated CEO and took over the role on 1 February 2009.

Last but not least, I would like to thank all our customers, partners and shareholders for their loyalty and generous support. There are more important projects to come and we will be doing all we can to fulfil their expectations and wishes.



Peter Grünschow

Chairman of the Board of Directors

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**WE'LL MAKE
PROGRESS TOGETHER!**

swissgrid is on the move, as “moving power” suggests. There’s an incredible energy, not just in the electricity grids but also among our employees. This energy needs to be harnessed so that it can benefit everyone, above all our customers, as part of the liberalisation of the Swiss market. Customer satisfaction is the focus of all our efforts. The opening-up of the Swiss electricity market has taken us into new and uncharted territory, where we are working together with other electricity companies to define and implement new processes for calculating new grid tariffs and developing renewable energies using cost-covering feed-in remuneration. swissgrid receives a substantial number of requests and suggestions every day, and we take them all seriously and try to find solutions to suit our customers and stakeholders. Last autumn we set up a free hotline on 0848 014 014 to handle the dozens of calls and e-mails that swissgrid receives every day. The team at the new Customer and Information Centre is available on that number to answer any questions related to market liberalisation.

What can we do better? We have received many responses and suggestions from customers and partners. We take customer feedback seriously and it is a good basis on which to continually improve our work and develop our company in line with the market. When our customers hold a mirror up to us, we see it as an opportunity, both in our day-to-day work and in our plans for tomorrow.

Our customers and partners are the focus of this annual report. We have asked six of them to talk about their expectations and experiences of swissgrid, and to tell us exactly where they think we can improve even further. Honest and constructive relationships with our customers and partners are an important basis for successful, long-term collaboration! Because together with our guiding principle “moving power”, it is these customer opinions that determine the future direction of swissgrid.

**“WE LOOK FORWARD
TO CONTINUING TO
WORK WITH SWISSGRID.”**

Ernst Stocker,
Head of Energy Trading,
IWB, Basel

IWB (Industrielle Werke Basel) supplies the Canton of Basel-Stadt with electricity, natural gas, district heating, drinking water and tele-coms services. Organisationally, IWB comes under the Department of Economic, Social and Environmental Affairs of the Canton of Basel-Stadt.

What does liberalisation of the Swiss electricity market mean for you?

The liberalisation of the Swiss electricity market on 1 January 2009 was a very special learning experience for me, and adapting the existing schedule balance group system to the new balance group system on time was a huge challenge for the Energy Trading division of IWB. We wanted to find an optimum solution for IWB. On the one hand we wanted to take advantage of potential synergies with other partners, but on the other hand we wanted to maintain a certain level of autonomy. Our aim was to keep our own resources and expertise in overall power plant management, process management via the new balance group system, schedule management with swissgrid and other partners, but also our participation in the new market for ancillary services as core competencies of IWB and expand these where necessary. With the formation of two proprietary balance groups for power plant management and energy trading, as well as the creation of a joint balance group with other partners and cities, we have been able to find a good solution for supplying IWB customers and implement it in good time.

What was your experience of working with swissgrid in 2008?

Due to the size of the project, we were inundated with documentation from the Association of Swiss Electricity Companies (VSE) and from swissgrid. But working together with swissgrid and other partners proved very productive. In particular, the preliminary trial run was very helpful for the planned introduction of the IWB balance group model. I would like to say a special thank you to all of the swissgrid project team who provided us with professional support at all times and kept us informed of any outstanding issues.

What do you expect from swissgrid in the future?

We look forward to continuing to work with swissgrid in the future. As well as secure and cost-effective operation of the grid, we expect swissgrid to be as transparent as possible as a service provider in a natural monopoly and to keep us informed about situations in the grid and the results of auctions in the ancillary services market. The current congestion at the borders and the operational restrictions imposed by swissgrid on power plants, sometimes at very short notice, are a major challenge for IWB. We hope and expect that swissgrid will find operational and technical solutions in this area. We would like to be informed in good time in the event of grid congestion which leads to restrictions in power plant operation.



moving

BG/SDL II

BG/SDL I

BG/SDL III

Germany, EU
Quality, Justice

Balance management

Under the new Swiss electricity legislation, as of 1 January 2009 medium and large consumers are free to choose their electricity supplier. This change from electricity monopoly to electricity marketplace was only made possible thanks to the introduction of the balance group system.

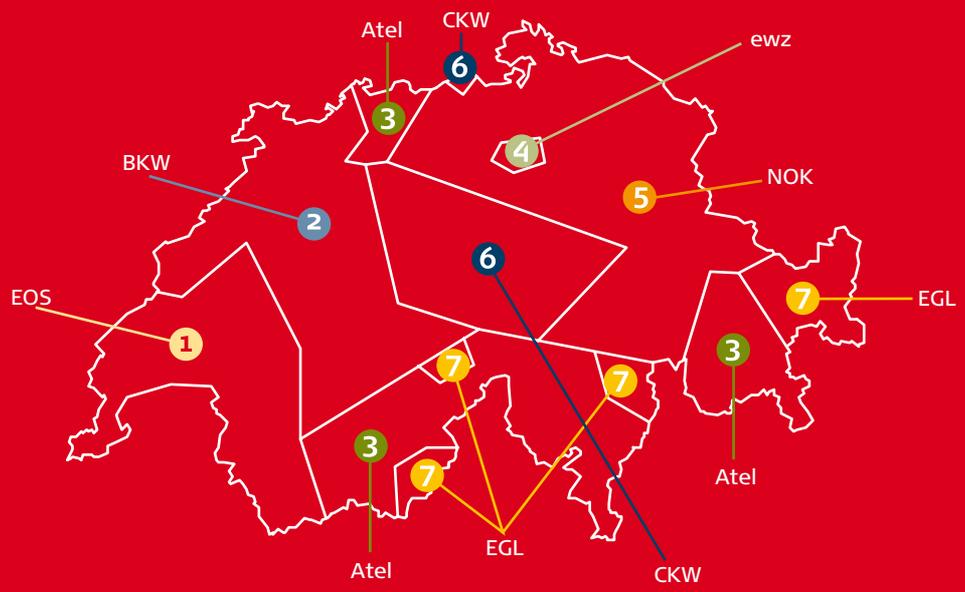
All electricity trading within Switzerland and with other countries, as well as the supply of end customers, is now carried out through balance groups. The balance areas and schedule balance groups have been abolished under this new system. All production and consumption sites that were previously assigned to the balance areas have been assigned by the distribution system operators to the newly created balance groups. A balance group is an energy account through which the balance group manager can conduct energy transactions with other balance group managers at home and abroad, offload energy from power plants or transfer energy to end consumers using schedules. It encompasses any number of feed-in and/or feed-out points within the Swiss control area.

swissgrid performs a central balancing function in this new system, in that it is responsible for maintaining the energy and power balance in the Swiss control area by procuring control energy. Put simply, this means that swissgrid is responsi-

ble for keeping electricity production and electricity demand balanced at all times. The role of the balance group manager is to keep his energy balance as close to zero as possible. To do this, he issues daily forecasts for the energy consumption of his end consumers and deploys his power plants accordingly, or conducts energy transactions with other balance groups. Balance groups are often unbalanced as a result of unavoidable forecasting errors. The costs of balancing the system (control energy) are billed as balance energy for deviations between supply and purchase according to the user-pays principle.

As of 1 January 2009, there were about 100 balance groups in Switzerland, including 60 companies from Switzerland and abroad. In principle, any legal entity that fulfils the conditions of the balance group contract can open a balance group and participate actively in the liberalised Swiss electricity market.

Before: Balance areas



Today: One Swiss control area with balance groups



**"I HOPE TO CONTINUE OUR
CONSTRUCTIVE WORKING
RELATIONSHIP, AND WOULD
ALSO LIKE SWISSGRID TO
CREATE MORE TRANSPARENCY."**

Peter Hüsler,
Head of Energy Logistics,
Swisspower AG, Zurich

Swisspower is a leading Swiss energy services provider and offers a full range of services and innovative and comprehensive energy solutions to large, small and medium-sized businesses as well as energy supply companies.

What does liberalisation of the Swiss electricity market mean for you?

I would like to answer this question from three different perspectives.

As a private individual,

I welcome the competition. When the second stage of market liberalisation is introduced, making it possible for people to choose their own provider, I will finally be able to choose the best product and the best service for my family. My current energy supplier already provides transparent information about the products I use. I would like to see a more open market for electricity meters and metering.

As a Swisspower employee,

I oversaw the electricity market liberalisation/market process project. In addition to the financial and time constraints, for a long time it was unclear how much the legislation would be changed. This uncertainty was felt not only in the industry but also by the suppliers, who waited until the very last minute to "Swissify" their systems.

As an employer,

the new market environment is a motivating challenge for Swisspower and its customers, which provides an opportunity to develop new energy solutions and services. New and highly skilled jobs will be created, in particular in the areas of Energy Management and Energy Logistics.

What was your experience of working with swissgrid in 2008?

Working with swissgrid in the preparation and test phase was a very intensive and positive experience. All issues were addressed quickly and professionally. We were always optimistic that all systems would be up and running by 1 January 2009. I would like to take this opportunity to congratulate and thank swissgrid for executing everything so perfectly.

What do you expect from swissgrid in the future?

I look forward to continuing our constructive working relationship, and I would like swissgrid to create more transparency, by publishing information on capacity congestion in the transmission system or at national borders in good time. I would also welcome more suggestions and above all specific measures for reducing costs in the areas of balance management and ancillary services. I therefore appeal to swissgrid to find ways to optimise processes and implement further steps to increase efficiency.



moving power

Energy Service Systems

Energy Retail Services

Energy Procurement

Energy Service Operations

Energy Retail Services

Energy Service Operations

Energy data management

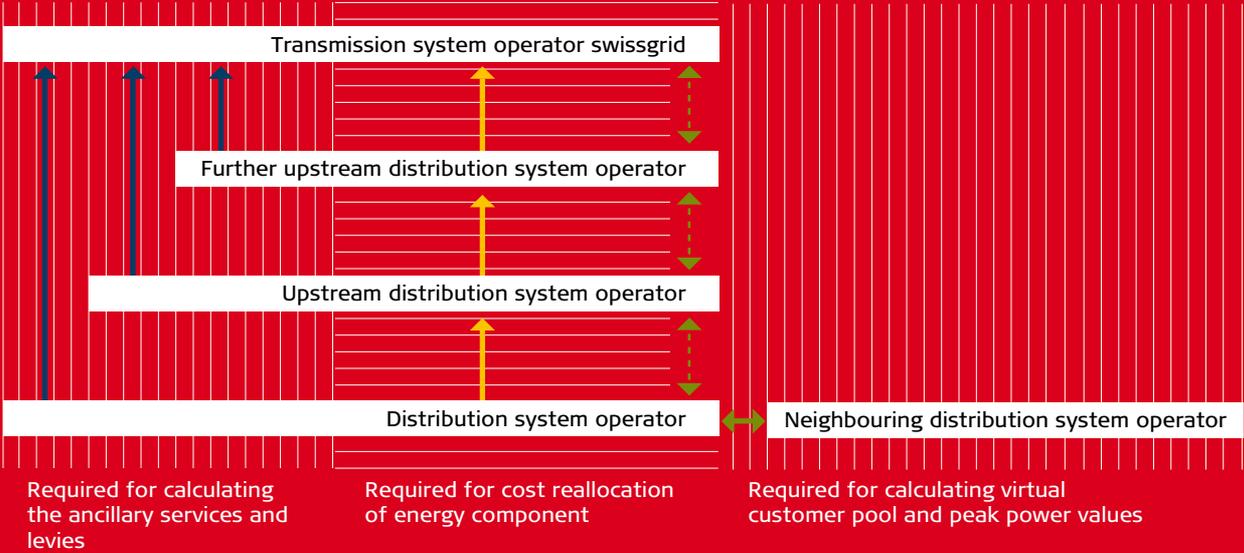
A liberalised electricity market will also require substantial innovations in energy data management (EDM). The challenge is that all of the 760 distribution system operators now have to put together various load profile aggregates and deliver them to the authorised market participants on time every month. Separate billing of energy and grid costs means new and higher demands on energy data exchange. Four amounts in total, namely supplier and balance group aggregates as well as gross energy of own grid and total gross energy of each grid operator, have to be generated and distributed as daily load profile aggregates with 96 fifteen-minute energy values. This task requires a professional EDM solution which guarantees that the data reach the recipient in the right quality, at the right time and at the right location.

As part of the preparations for a liberalised electricity market, swissgrid carried out several simulations of all new procedures and set up a test centre for data exchange in accordance with standardised guidelines from eBIX (European forum for energy Business Information eXchange). This test centre also offers the distribution system operators and system suppliers the opportunity to check messages from their EDM systems for errors and test simple processes free of charge.

All of swissgrid's IT systems have been ready to start the new energy data exchange since 1 September 2008. In the last quarter of 2008 and primarily in January 2009, an intensive test phase was initiated during which around 5 000 load profiles were delivered per day by about 800 distribution system operators under real conditions. Things got serious for the first time on the 10th working day of February 2009, when, according to the new delivery process, the January data were due to be delivered to swissgrid. About a week later swissgrid had already received 95 % of all the required energy data.

The energy data are used as the basis for calculating the balance energy as well as for "cost reallocation" and direct allocation of the costs for ancillary services. These costs have been billed to the balance groups or the distribution system operators on a monthly basis since March 2009.

Energy data management



Energy data flow among the system operators:

- Gross energy of own grid
- Total gross energy
- Supply points

"I EXPECT RAPID IMPLEMENTATION OF THE STRATEGIC GRID 2015 FOR ELIMINATING CONGESTION AND THE CORRESPONDING SWISSGRID INITIATIVES."

Christian Brunner,
Director of Grids,
EOS, Lausanne

Energie Ouest Suisse (EOS) is engaged in electricity generation from hydroelectric power, high-voltage transmission and the marketing of electricity on its own account and on behalf of its shareholders, the main electricity companies in the French-speaking part of Switzerland. On 18 December 2008 EOS merged with Atel to become the leading Swiss energy service provider with a European focus.

What does liberalisation of the Swiss electricity market mean for you?

I view liberalisation of the electricity market from three different perspectives – power generation, operations and the market. From a power generation perspective, the Act and the Ordinance are a profound political compromise. Politics can change some laws, but not the laws of physics. The decision to create an open market was only a partial decision that was made tentatively. Due to the scarcity of resources, the electricity market in Europe and in Switzerland is a seller's market. And in a seller's market, prices do not always favour the buyer or the consumer. From an operational perspective, all systems in the Swiss electricity industry were prepared for market liberalisation by the time stipulated by the government. System design and development required hours of discussions between the various market players. But the huge amount of time and money spent was worth it in the end. However, if I judge the results based on the number of customers who have so far changed their electricity supplier, they are rather sobering. The issues of this politically profound compromise, "once free, always free" and "market or no market", need to be resolved better in the second phase.

What was your experience of working with swissgrid in 2008?

Based on the previous separation of responsibilities between swissgrid and the rest of the industry, and due to the narrow timeframe, it was essential to have a close working relationship for concept preparation and system operationalisation. The experiences of EOS with the "grid stamp" and the grid services for its customers proved very useful when it came to formulating the concept. We collaborated with swissgrid on a high level which was very constructive. Compromises were reached quickly. Without that close cooperation, the test phase and

final commissioning would not have been possible. The results so far confirm that excellent work has been achieved and therefore everyone involved in this mammoth project deserves particular recognition for their outstanding efforts.

What do you expect from swissgrid in the future?

The primary aim of energy supply is to ensure that the customer can purchase sufficient electricity at all times at a good price. In addition to keeping a constant energy balance between production and consumption, this also requires the corresponding available transport capacities. In this respect, Switzerland needs to be more closely interlinked with the European electricity market. I would like swissgrid to cooperate more closely with other European transmission system operators (TSOs) and to set up an "Electricity NEAT". That way Switzerland would be able to continue its role as electricity hub and above all as a storage centre for renewable energies. I also expect the rapid implementation of the strategic grid 2015 for eliminating congestion and the corresponding swissgrid initiatives. It must also be ensured that there is no political overregulation and that there is legal certainty for investment projects.



Saving power

Grid operation

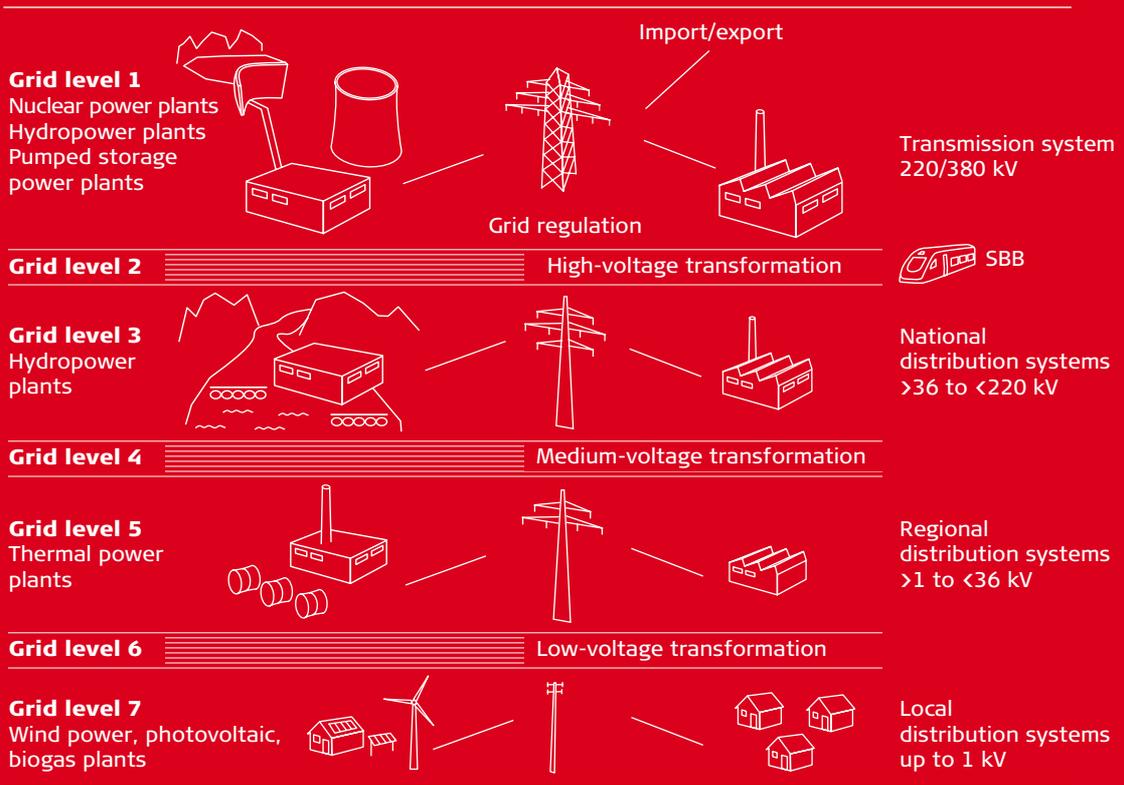
Reliable operation of the high-voltage grid is swissgrid's primary activity. It ensures that there is always sufficient transmission capacity in the grid and that there is no overloading. Because the current flows disperse throughout the grid according to the laws of physics, they can only be controlled to a limited extent. However, thanks to consistent planning and monitoring of the energy flows, swissgrid ensures optimum technical and cost-effective operation of the transmission system and a high level of reliability of the electricity supply.

swissgrid performs this legal mandate by means of continuous grid planning and management, including the provision of ancillary services. The balance groups and power plant companies submit their supply and procurement schedules for Switzerland a day in advance, and the surrounding transmission system operators also submit their exchange schedules. They notify when, where and how much electricity they will feed in or withdraw. However, various uncertain factors such as weather conditions lead to deviations from the submitted schedule values and make it difficult to forecast and plan the flows of electricity in the grid.

Liberalisation of the Swiss electricity market has fundamentally changed the industry, but the regulations for European grid operation still apply, based on the UCTE's Operation Handbook. This document governs the technical operation of the Continental European grid. swissgrid has agreed standard cross-border management processes with the neighbouring German, French, Italian and Austrian control area operators, because more than 10% of Continental Europe's electricity is transmitted via the Swiss transmission system.

Another important prerequisite for reliable operation of the transmission system is an intact grid infrastructure, the majority of which is still owned by the swissgrid shareholders Atel, BKW, CKW, EGL, EOS, ewz, NOK and RE. Specialists at the swissgrid shareholder companies maintain the power lines, transformers and substations and carry out regular checks from the air and on the ground to ensure high availability of the installations, while swissgrid operates the grid and guarantees non-discriminatory access to the transmission system for all grid users. Any user who wants this access, i.e. wants to use the grid, must comply with technical grid connection conditions, which means they must conclude a grid usage contract and belong to a balance group.

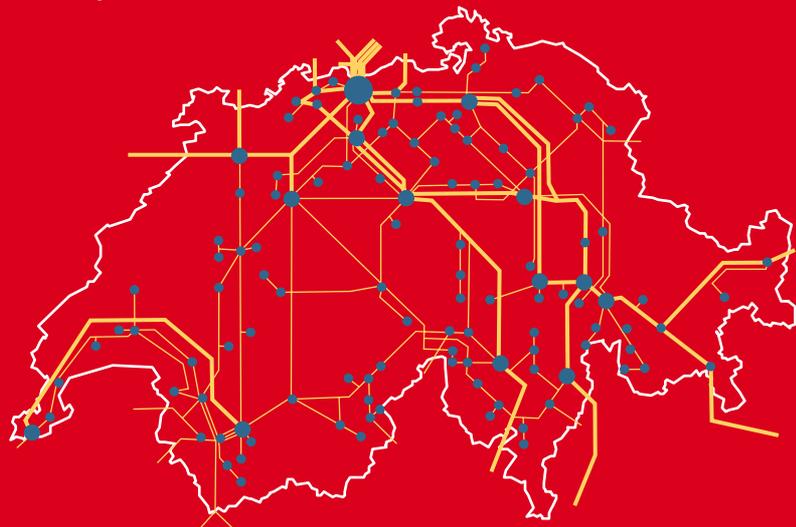
The 7 Swiss grid levels



The Swiss transmission system

Grid length: 6696 km
 380 kV: 1780 km
 220 kV: 4916 km

- Substation or power plant
- 380 kilovolts
- 220 kilovolts



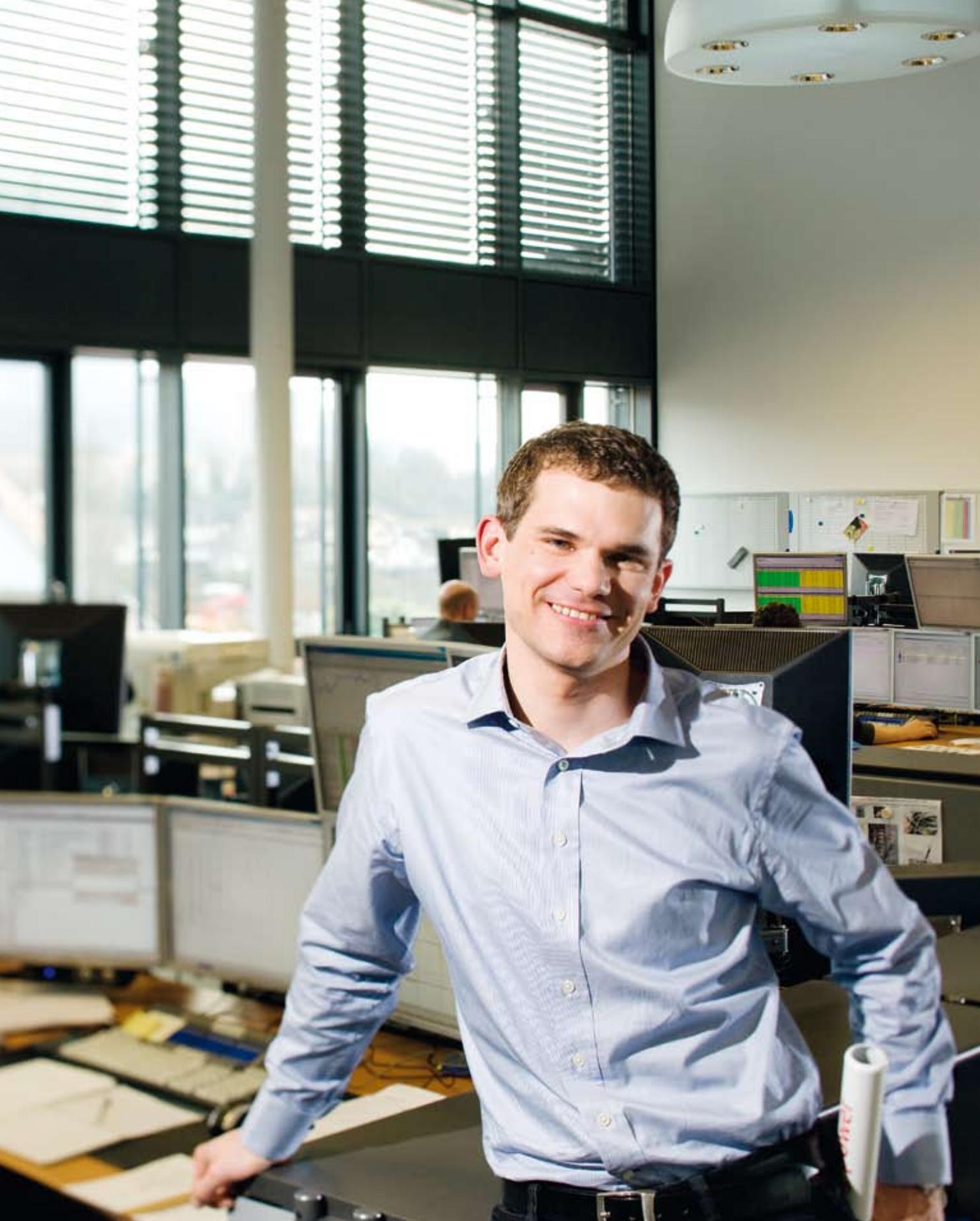
**"I WOULD LIKE GRID OPERATION
THAT ALLOWS ALL MARKET PLAYERS
TO FULFIL THEIR ROLES IN THE BEST
WAY POSSIBLE, DESPITE CLEAR
SEPARATION OF RESPONSIBILITIES
AND TECHNICAL DIFFERENCES."**

Dr. Gaudenz Koepfel,
Asset Trading Long Term,
Atel, Olten

Aare-Tessin AG für Elektrizität (Atel) is Switzerland's leading pan-European energy service provider. Since its founding in 1894, the company has evolved from a regional electrical utility based in Olten into an internationally oriented partner with core competences in energy trading and energy services. On 18 December 2008 Atel merged with EOS to become the leading Swiss energy service provider with a European focus.

What does liberalisation of the Swiss electricity market mean for you?

My involvement in various preliminary and implementation projects since 2007 has given me the chance to learn all about market liberalisation. Working on certain concepts and helping to design the current system was a really unique opportunity. I was able to learn a lot in great detail in a really work-intensive period of time, which is of course a good basis for my current job in the area of ancillary services.



Ancillary services

Electricity and/or electrical energy cannot be stored in large quantities by conventional means. So at any given point in time, the amount of electricity produced must match exactly the amount being used. This balance guarantees the secure operation of the electricity grid at a constant frequency of 50 Hz. Unforeseen fluctuations between the feed-in and feed-out of electrical energy in the grid must be balanced out at short notice by the suppliers of control energy increasing or reducing the power plant output. Technically, this is achieved within the synchronous UCTE European electricity grid in a three-stage control procedure (primary, secondary and tertiary control). (See graphic opposite)

In the liberalised electricity market, the Electricity Supply Act provides for one control area for Switzerland as a whole. The control area is a physical area defined by metering points, and swissgrid is responsible for grid regulation within that area. In this connection, swissgrid now has responsibility not only for ensuring reliable operation of the transmission system but also for procuring additional services required to guarantee and maintain a reliable and permanent electricity supply. As of 1 January 2009, swissgrid is responsible for procuring these so-called ancillary services using transparent, non-discriminatory and market-oriented methods.

Ancillary services in the electricity supply sector are defined as services delivered by grid operators to customers in addition to the transmission and distribution of electrical energy. This includes, in particular, the control power needed to ensure grid stability in the case of unforeseen events, such as the failure of a power plant. To perform the above ancillary services, swissgrid uses supplementary services from suitably qualified partners. The contract scenario envisages signing a framework agreement with service providers following a technical and operational appraisal of the providers and their power plants. On this basis, providers are then eligible to bid for the ancillary service in question.

But the ancillary services also include numerous other measures available to swissgrid for maintaining a stable electricity grid. These include system coordination, black start and island operation capability of producers, voltage maintenance, operational measurements and compensation of reactive power losses. This ensures that consumers are always supplied with sufficient electricity even in an emergency.

Ancillary services for grid control



Power plant outage in Switzerland



Primary control throughout Europe

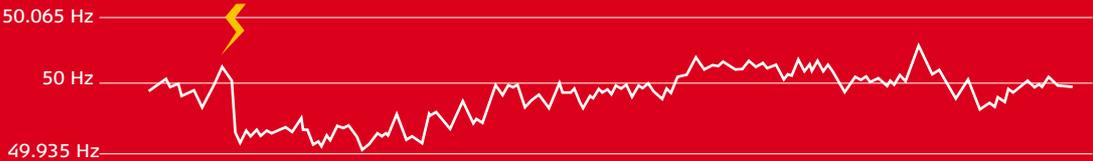


Secondary control in Switzerland

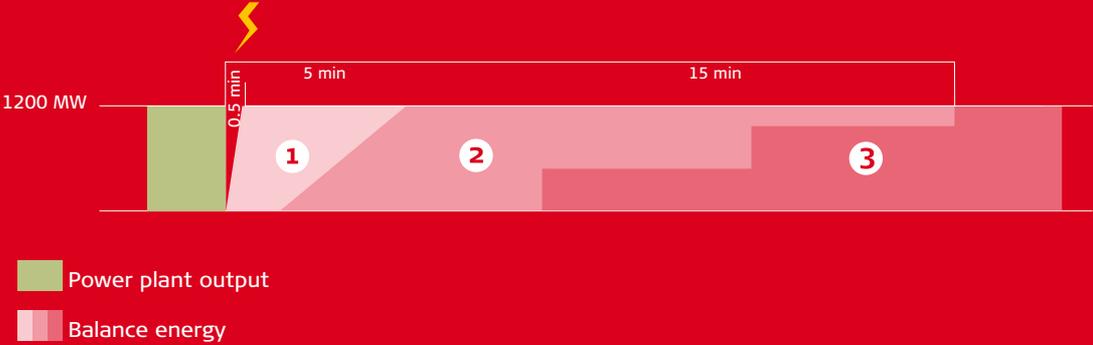


Selective tertiary control through contracts with power plants

Grid frequency



Control energy



- Power plant output
- Balance energy

**"I AM HOPING FOR A
REASONABLE MODIFICATION,
IMPROVEMENT AND
SIMPLIFICATION OF PROCESSES."**

Jean-Marie Rouiller,
Member of the Executive Board,
RhônEole SA, Collonges

RhônEole SA was founded with the goal of building and operating wind power plants in the Rhône valley. The company won the 2009 Watt d'Or award in the "Renewable Energies" category for its Mont d'Ottan wind farm in Martigny (VS), which went into operation in May 2008. The farm is the biggest of its kind in Switzerland.

How important are the development of and the prospects for renewable energies in Switzerland for you?

The Swiss Parliament has decided to increase the production of renewable energies by 5.4 TWh by 2030 in order to stabilise or reduce CO₂ emissions as quickly as possible. Every kWh of renewable energy that is produced reduces the amount of CO₂ emitted into the atmosphere. It is therefore absolutely key to commission installations that produce large quantities of renewable energy. The "Mont d'Ottan" project near Martigny, which is currently the largest hydropower plant in Switzerland, and the "Cime-de-l'Est" hydropower plant at Collonges-Dorénaz are part of a key initiative for a future of sustainable energy. Although the amount of energy that our hydropower plants produce is modest, I am optimistic about future projects, because the price of a kilowatt hour of wind power is the same as a kilowatt hour of hydropower, and wind power is also one of the cheapest sources of renewable energy.

What was your experience of working with swissgrid in 2008?

A lot of patience and understanding was required during the CRF registration process. The new legislation has brought with it a spate of regulations that are extremely restrictive and expensive to implement. They also affect the energy producers, particularly small producers who want to benefit from CRF, but for whom some of these restrictions are unreasonable. The system for proving the origin of energy is particularly unsuitable for small installations and is extremely expensive. However, swissgrid did not have an easy task, and was always available to answer our questions and deal with any problems in a professional manner.

What do you expect from swissgrid in the future?

I am hoping for a modification, improvement and simplification of the processes that were unfortunately defined without consultation with the rest of the industry. The regulations on the connection charges for installations producing renewable energies need to be redefined, as do the regulations on expanding the grids. I expect the remuneration to be paid on time by the balance group for renewable energies or by the Energie Pool Schweiz AG so that small producers don't get into financial difficulties. That is the only way that projects and investments in renewable energies can really be implemented with the appropriate outlay and be economically viable.



Renewable energies

Having passed the Electricity Supply Act, the Swiss Parliament has also revised the Energy Act (EnG). This revised Energy Act aims to increase electricity generation from renewable energies by 2030 by at least 5 400 GWh. For this purpose, it contains a package of measures aimed at promoting renewable energies and energy efficiency in the electricity sector, the mainstay of which is the cost-covering remuneration scheme (CRF) for feeding electricity generated from renewable energies back into the grid. This is intended in particular to provide a real financial boost to the production of electricity from hydropower up to 10 megawatts, photovoltaics, wind power, geothermal, biomass and waste from biomass. swissgrid will take on the administration of this new financing scheme which came into effect on 1 January 2009.

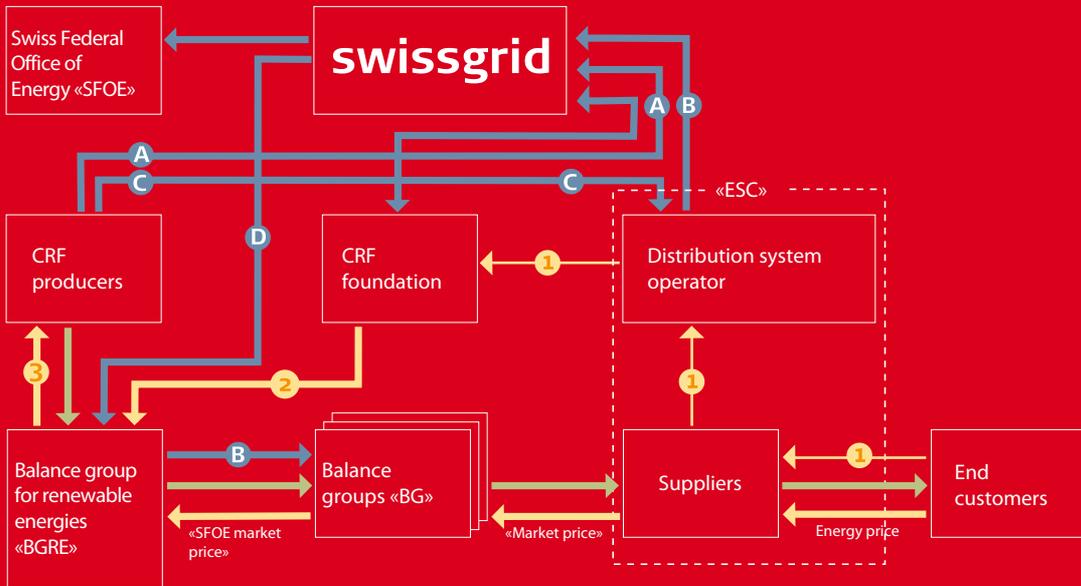
Between the start of registration on 1 May 2008 and the end of 2008, more than 5 800 installations were registered for CRF at swissgrid, which far exceeded expectations. Solar installations are particularly popular, and the funding available for photovoltaics had already been allocated by October 2008. But all the funding available for all CRF installations, which covers all the other technologies, had also already been allocated to all those who registered by October 2008. While it was possible to ease the situation temporarily thanks to careful overbooking on the instructions of the Swiss Federal Office of Energy (SFOE),

this is not a long-term solution to the anticipated gridlock of the new incentive scheme for green energy production. The Department of the Environment, Transport, Energy and Communications (DETEC) has asked the SFOE to come up with some proposed solutions by mid-2009.

If producers want to benefit from feed-in remuneration from 2009, they must prove how much electricity from renewable energies they feed in to the grid. Because not all electricity is the same. To do this, they have to have guarantees of origin issued and the installation must be registered in the Swiss guarantees of origin system. For large installations this is done by private companies (auditors), for small installations the distribution system operator is responsible. The guarantees of origin then go to the balance group for renewable energies which sorts out the billing with the producers. The aim of the guarantees of origin is to attain a high level of credibility and to avoid double payments. Because there is only one system for issuing the guarantees of origin: as well as the registration process for cost-covering feed-in remuneration, swissgrid, as the only issuer of guarantees of origin in Switzerland, is also responsible for registering the installations and the electricity volumes.

Cost-covering remuneration for feed-in to the grid

Producers with connection capacities >30kVA



Information flow (without billing)

- A Registrations
- B Schedule
- C Production data
- D Guarantee of Origin

Financial flow

- 1 Max. surcharge 0.6 Rp./kWh
- 2 Remuneration less «SFOE market price»
- 3 CRF remuneration

Energy flow

CRF = Compensatory remuneration for feed-in to the electricity grid

ESC = Electricity supply company

**"I HOPE THAT OUR JOINT
SUBSIDIARY CESOC WILL
SUCCESSFULLY COMMENCE
OPERATIONS."**

Dipl. Ing. Rainer Joswig (50),
Chairman of EnBW Transportnetze AG (TNG),
Stuttgart

EnBW Transportnetze AG (TNG) operates the transmission system in Baden-Württemberg and is connected to the German and European grids. At the control area borders, the transmission system is connected to the transmission systems in Germany as well as the transmission systems in France, Austria and Switzerland.

What is your view on Swiss market liberalisation from a European perspective?

In the interests of creating a Europe without borders, I welcome liberalisation of the Swiss electricity market. In contrast to Germany, on the Swiss side swissgrid had the considerable advantage that it had the time available to make intensive legal preparations and to benefit from the experiences and findings of its neighbours. It made the best use of this opportunity and successfully completed the nonetheless challenging task. We are pleased with the results of the deregulation, particularly as the processes are largely compatible with those of our European neighbours. From a European perspective, in addition to the now successful liberalisation of the electricity market, swissgrid's active participation in the European committees of transmission system operators deserves highlighting – another important contribution to the development of the European electricity market. Recently swissgrid has played a pivotal role in the development of the ITC system, in particular taking into account the interests of the transit countries.

What was your experience of working with swissgrid in 2008?

Since interconnected operation began about 50 years ago, we have been jointly responsible for the German-Swiss border and we have always worked well together. In 2008, swissgrid and TNG recognised that we would be even better equipped to meet the changing requirements of a converging European electricity market if we worked even more closely together. cesoc was formed in response to the question of how to cope with the growing responsibilities of grid security, improve the use of cross-border capacities and optimise power generation, in particular in the area of control energy, for both Germany and Switzerland. During this close collaboration, staff and management alike were highly committed to their work and the issues at hand. The defined objectives were only achieved thanks to good prioritising of tasks, great team spirit and a high level of technical skill.



ing power

Europe

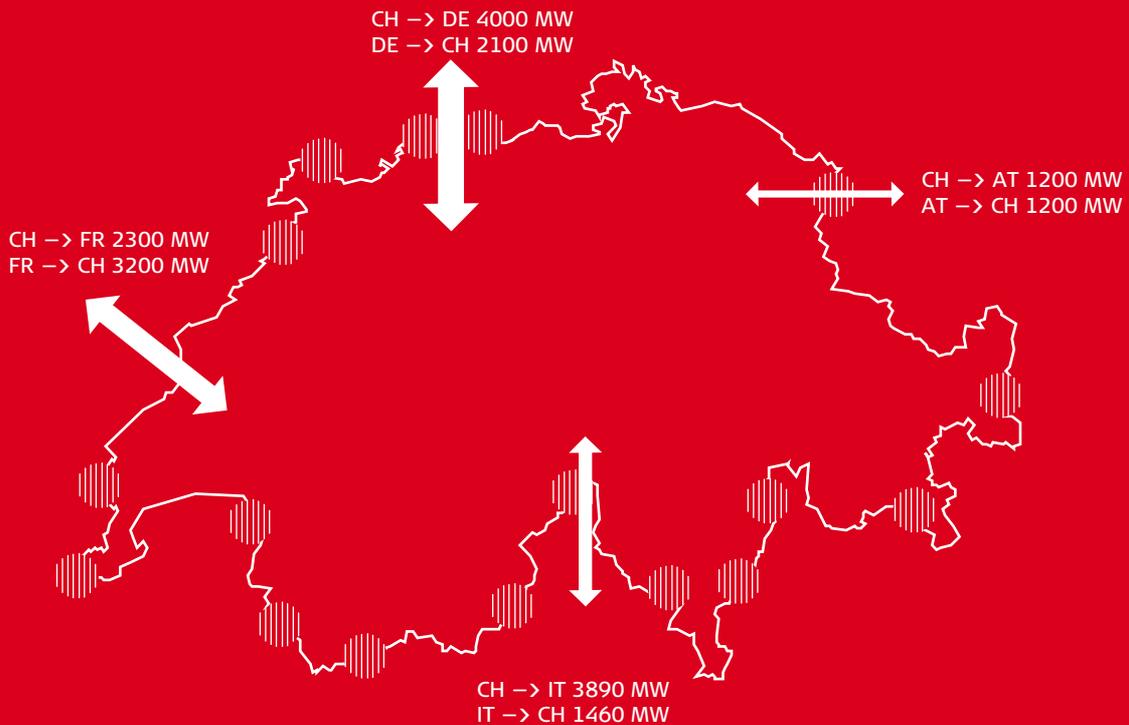
A small country in the heart of Europe, Switzerland is of enormous importance not only for the production of electricity from hydropower but also as a transit country for electricity. The Swiss transmission systems have been connected to the surrounding countries for more than 50 years and greatly benefit society and the economy in Switzerland. As part of the ongoing development of the European electricity market, swissgrid represents the interests of the Swiss electricity industry in various international associations, committees and working groups. 2008 was also a busy year on the European stage. As well as the organisational developments and strategic innovations, some important results concerning security of supply were achieved in the area of operations.

In the UCTE, an association of European transmission system operators that deals with operational and technical issues involved in the operation of transmission systems, preparations for connecting the Turkish transmission systems are in full swing. swissgrid is working on static and dynamic calculations, studies and key principles for incorporating Turkey and other European countries. As UCTE South control area coordinator, swissgrid also further optimised and standardised important coordination, monitoring

and billing tasks. Through its operation of various different communication and monitoring platforms, such as wide area monitoring which can be used for early detection and avoidance of dangerous fluctuations in the grid, swissgrid is a recognised centre of competence in the UCTE grid.

As a member of the European association ETSO, which deals with market and grid management aspects of the European transmission system, swissgrid gathers the data required to determine compensation payments (ITC = Inter TSO Compensation) between the different TSOs in return for international transit services. This compensation must be made for actual transit flows as well as for losses caused by transit flows. This system was expanded in 2008 and now includes 31 contract parties from all over Europe and a total of 450 million Euros in compensation funds. swissgrid also plays a key role in this area and calculates the corresponding compensation payments for all transmission system operators based on energy data.

Physical exchange of energy with Europe



 Major transit lines

1000 MW = roughly the production capacity of the Gösgen nuclear power plant

As part of various initiatives relating to the European electricity market, swissgrid and EnBW Transportnetze AG founded a joint venture company, cesoc, to coordinate the central European transmission system, with the aim of exploiting synergies with regard to security of supply and grid operation. This joint venture project is an important catalyst for improving coordina-

tion between transmission system operators in the European electricity market, which will only happen if the European transmission systems are viewed from and operated on a supra-national level. cesoc will assume concrete form in 2009.

NEWS FROM THE SWISS TRANSMISSION SYSTEM

Tense situation in the Swiss high-voltage grid

Despite measures to optimise grid operation, the Swiss high-voltage grid was also affected by congestion at various times of the day and year in 2008. This was due to the fact that cross-border trading activities involved in the ongoing liberalisation of the electricity market have led to an increase in the flow of electricity in the high-voltage grid over the years. The Swiss grid has grown historically and is gradually reaching its load limits, so much so that it is no longer able to meet the continually increasing demands. The 220 kV grid takes on key tasks for regional and interregional supply, and the 380 kV grid serves as an “electricity superhighway”, primarily for important transit flows in Europe and Switzerland, while at the same time being a platform for European electricity trading in a Europe-wide liberalised market. Even with the swissgrid grid operations engineers monitoring the situation 24 hours a day, action is urgently required to guarantee long-term security of supply.

In 2006, the Federal Council established the “Working Group on Power Lines and Security of Supply” (AG LVS) with the aim of drawing up recommendations for improving the transmission system structures and improving the national supply of electricity. With the help of swissgrid employees, the working group developed the principles for the “Strategic Grid 2015” in Switzerland as well as a simplified and accelerated approval process for power line construction in the 50 Hz transmission system. The strategic grid includes all transmission lines and installations required for security of supply in Switzerland from 2015. This includes power lines and installations for traction power supply (16.7 Hz) and general power supply (50 Hz). The strategic grid covers new lines, substations and transformers that need to be built as well as existing lines and installations that need to be extended or replaced.

The suggested measures are intended to reduce congestion in the Swiss transmission system and ensure the removal of electricity from production sites that are under construction or in the planning stage. This will mean fewer restrictions for producers and traders and an increase in the security of supply.





«Green light» on the north-south axis

Since 28 November 2008, electricity has been flowing via the modernised section of the important 380 kV north-south axis of the Swiss transmission system. The complete replacement of the masts between Arth and Küssnacht am Rigi took seven months and cost CHF 15 million. Around 35 technicians assembled the 28 masts piece by piece, bolting together a total of 800 tonnes of steel for the on average 64 metre high frames and using around a tonne of bolts per mast.

Following assembly, the technicians fed in a total of 100 kilometres of 30 millimetre cables made of an aluminium alloy. A total renovation was necessary because the masts were heavily corroded after 60 years of continuous operation and because they no longer fulfilled the requirements of high-voltage power lines. Higher masts and greater distances between the cables and the ground or buildings provide increased protection

from non-ionising radiation as well as improved operating security. The replacement of the 28 masts between Arth and Küssnacht am Rigi is part of the renovation of the 380 kV line between Amsteg and Mettlen which had been started by swissgrid shareholder Atel in 1989.



Opening up of the Lake Geneva and Valais regions

Renovations are currently being carried out on two large hydropower plants in Valais (Cleuson-Dixence and Nant de Drance), which will increase production capacity in the canton of Valais fourfold. In view of the change in demand at peak load times, both production sites make an important contribution to the security of supply in the Swiss electricity grid. However, an expanded electricity grid for removing energy is required for the electricity produced in these power plants from 2010 onwards. Efforts have been underway in the process for the long-term expansion of the grid infrastructure in the lower Rhone Valley for about 15 years. Hopes are high that the Swiss Federal Office of Energy will give the final go-ahead. The implementation of the planned Chamoson-Chippis grid expansion projects

(380 kV), the 65 kV line between Chamoson and Chandoline and the SBB 132 kV line between Chamoson and St. Léonard, would link Valais to the Swiss and European transmission system with a total capacity of around 4 000 MW. The implementation period is extremely short compared with the overall length of the process. swissgrid shareholder EOS anticipates just 21 months for completion of these projects.



New coat of paint to withstand the next 20 years of wind and weather

Overhead cables are exposed to wind and weather 24 hours a day. The special weather-resistant paint on the high-voltage masts therefore has to be re-applied at regular intervals to ensure sufficient protection against corrosion. In late summer 2008, extensive corrosion protection work was carried out on 112 high-voltage masts along the 380/220 kV line between Benken/Grynau and Mettlen at dizzying heights under electrical voltage. This kind of work can only be carried out in appropriate weather conditions and under extremely strict safety regulations. The specially trained experts work at heights of 20 to

30 metres with around 10 kilos of special paint attached to their safety belts. swissgrid shareholder ewz coordinated the work together with the cantonal Environmental Protection Office and took appropriate measures to prevent damage to the surrounding farmland.

NEW CONTROL CENTRE FOR THE SWISS TRANSMISSION SYSTEM

In order for swissgrid to maintain an overview of the Swiss and European transmission systems, work started in July 2008 on converting and re-designing the new grid control centre in Laufenburg. The work will be completed in autumn 2009.

The grid control centre is the heart of swissgrid and the central tool for monitoring the status of the grid. Not only do the high-voltage grids of several countries converge in Laufenburg, but also all the information on system status, events and disruptions in the high-voltage grid as well as about 40 Swiss power plants. This information is recorded and processed and is used as the basis for implementing necessary measures. Grid operation specialists monitor and control the roughly 6 700 kilometre-long high-voltage grid 24 hours a day and are responsible for ongoing frequency and voltage control.

The renovation of the 30-year-old grid control centre has led to a complete redesign of the space to include ergonomically optimised workstations. This modern, open environment is flooded with natural light, and all the information from each location that is required for grid operation can be viewed from this room. The very latest findings in the field of physical ergonomics were taken into consideration, and the new control centre for the Swiss transmission system is equipped with large-screen displays

as well as eleven system-integrated workstations in accordance with the ISO design guidelines for control centres. A comprehensive interim solution was implemented to carry out all grid operation activities during the renovation.

When the new control centre goes into operation at the end of 2009, the visitor experience will also be completely redesigned, with a hermetically sealed visitor booth in the control room and a separate area for tours which is also designed to be an "emergency room". A maximum of 30 people per tour will be given a fascinating insight into the operation of the transmission system without disturbing the work of the grid operations engineers.

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CORPORATE GOVERNANCE

Shareholders

swissgrid is wholly owned by the eight Swiss electricity companies Atel, BKW, CKW, EGL, EOS, ewz, NOK and RE.

Aare-Tessin AG für Elektrizität (Atel)	18.88 %
BKW FMB AG (BKW)	11.17 %
Centralschweizerische Kraftwerke AG (CKW)	5.24 %
Elektrizitäts-Gesellschaft Laufenburg AG (EGL)	12.32 %
Energie Ouest Suisse SA (EOS)	13.71 %
Stadt Zürich (Elektrizitätswerk der Stadt Zürich) (ewz)	12.61 %
Nordostschweizerische Kraftwerke AG (NOK)	24.22 %
Rätia Energie AG (RE)	1.85 %

swissgrid has no holdings as of 31 December 2008.

Shares, share capital and share register

The company's share capital amounts to CHF 15 000 000 (fifteen million Swiss francs) and is divided into 15 000 000 (fifteen million) registered shares with a nominal value of CHF 1.00 per share (one Swiss franc). The shares are fully paid-up. There is no authorised or conditional capital. The company's shares may not be listed on an exchange. The Board of Directors keeps a share register listing the names and addresses of the owners and beneficiaries. Only those who are entered in the share register may exercise shareholder rights as a shareholder or beneficiary in relation

to the company. The status of the entries in the share register on the twentieth (20th) day prior to the Annual General Meeting is decisive for determining entitlement to participation and representation at the Annual General Meeting. The majority of the share capital and the associated voting rights must belong directly or indirectly to the cantons and municipalities in accordance with Art. 18 Para. 3 of the Electricity Supply Act (StromVG). In the event of share transfers (sale, gift, exercise of pre-emption rights and purchase rights, etc.), these majorities must be retained. If a planned transaction infringes upon one of these majority requirements, the approval of the Board of Directors must be denied.

Board of Directors

The Board of Directors comprises at least three elected members. The majority of the members and the Chairman must meet independence requirements in accordance with Art. 18 Para. 7 StromVG. The Board of Directors is usually elected at the Annual General Meeting for one year at a time. The term of office for members ends on the day of the next Annual General Meeting. All cantons together have the right to delegate and recall two members to/from the Board of Directors of the company (Art. 18 Para. 8 StromVG). The members of the Board can be re-elected at any time. The Board is self-consti-

tuting. It nominates its Chairman and Vice Chairman and the Secretary, who does not have to be a member of the Board.

Members of the Board of Directors

Konrad Peter	Chairman until 14 May 2008 (independent)
Peter Grüschow	Chairman from 4 December 2008 (independent)
Hans E. Schweickardt	Vice Chairman (EOS)
Dr. Conrad Ammann	(ewz)
Adrian Bult	(independent)
Thomas Burgener	(cantonal representative)
Heinz Karrer	(Axpo)
Otto E. Nägeli	(independent)
Herbert Niklaus	(Atel)
Fadri Ramming	(cantonal representative)
Kurt Rohrbach	(BKW)
Doris Russi Schurter	(independent)
Dr. Andrew Walo	(CKW)
Conrad Wyder	(independent)

Internal organisation

The Board of Directors is responsible for the overall management of the company and for supervising the Executive Board. It represents the company externally and takes care of all matters that are not assigned to another corporate body according to law, regulations or the articles of association. The Board of Directors can, subject to the legal guidelines on independence (Art. 18 Para. 7 StromVG), transfer the management of the company or indi-

vidual parts thereof as well as the representation of the company to one or more persons, members of the Board of Directors or third parties, who do not have to be shareholders. It issues the organisation regulations and the corresponding contractual relationships.

Organisational structure

swissgrid ag is divided into five organisational units:

- Operations
- Commercial Grid Management
- Finance & Accounting
- IT
- Human Resources

Executive Board (as of 4 March 2009)

Pierre-Alain Graf	CEO
Rudolf Baumann	Operations
Thomas Tillwicks	Commercial Grid Management
Luca Baroni	Finance & Accounting
Andy Mühlheim	IT
Vakant	Human Resources

Compensation

The members of the Board of Directors receive a fixed compensation (fees and expenses) which is on a sliding scale for the Chairman and the other Board members. Compensation for the members of the Executive Board consists of a basic salary (incl. per diem expenses) and a variable salary component which is dependent on achieving company and personal targets. The amount of compensation for members of the Executive Board is defined by the Staff and Compensation Committee. Payments to the Board of Directors and the Executive Board are disclosed on pages 13 and 14 of the Financial Report.

Participation rights

Shareholders' participation rights are governed by law and in the articles of association. There are no statutory regulations that differ from the legislation.

External audit

KPMG AG, Basel, is the auditor for swissgrid ag. The audit mandate was first awarded to KPMG for the 2005/2006 financial year (long year). The auditor is appointed at the Annual General Meeting for a one-year term. The present auditor in charge has been in the role since 2005/2006 (long year).

Internal control system

The internal control system (ICS) has an important role as part of corporate management, auditing and monitoring and covers all procedures, methods and measures mandated by the Board of Directors and the Executive Board that serve to ensure that swissgrid ag operates in the correct way. The organisational measures for internal control are integrated in the KPMG operating procedures, and they are implemented while work is being carried out or after it has been completed. Internal checks do not come under a separate ICS function, but are integrated in the processes. The ICS at swissgrid, which focuses consistently on key risks and checks, is implemented at all levels of the organisation and demands a high level of personal responsibility from employees.

Risk management

The company-wide risks of swissgrid ag are identified, changes to risks currently being monitored are re-evaluated and the results of previous measures are determined as part of a periodic, multi-level process. On this basis, the current risks are evaluated according to their probability of occurrence and impact. Those risks that are assessed as significant are avoided, reduced or hedged through corresponding measures determined by the Board of Directors.

Expert committees

The Board of Directors can assign the preparation and implementation of its decisions as well as the monitoring of business activities to committees. This can also be done on an ad-hoc basis, if necessary. Tasks and organisation of the ad-hoc committees are defined in the decision on their deployment.

Strategy Committee (since 17.12.2008)

The Strategy Committee supports the Board of Directors in the strategy process. It advises on the strategic principles on behalf of the Board of Directors and reviews the strategy for the Board of Directors on a regular basis. The committee presents its view on proposals that relate to strategic issues.

Members of the Strategy Committee:

Peter Grüşchow	(Chairman, independent)
Adrian Bult	(independent)
Fadri Ramming	(cantonal representative)
Hans Schweickardt	(EOS)
Andrew Walo	(CKW)

Finance and Audit Committee

The Finance and Audit Committee supports the Board of Directors in its supervisory role, namely with regard to the integrity of the accounts, the fulfilment of legal provisions, and the competence and services of the external auditor. The Finance and Audit Committee assesses the suitability of financial reporting, the internal control system and the general monitoring of business risks. It ensures that there is ongoing communication with the external auditor concerning the financial situation and course of business. It makes the necessary preparations relating to the appointment or removal of the auditor.

Members of the Finance and Audit Committee:

Doris Russi Schurter	(Chairperson, independent)
Conrad Ammann	(ewz)
Otto E. Nägeli	from 17.12.2008 (independent)
Herbert Niklaus	(Atel)
Fadri Ramming	until 17.12.2008 (cantonal representative)

Staff and Compensation Committee

The Staff and Compensation Committee draws up policies for the compensation (incorporating all compensation components) of the members of the Board of Directors, the CEO and the division heads and submits a proposal to the Board of Directors. The committee defines the compensation for the CEO and the members of the Executive Board as part of the policies approved by the Board of Directors in accordance with the compensation concept. It presents its view on candidates to be nominated in accordance with the CEO's proposal. It also ensures that succession planning is in place for the Board of Directors and the Executive Board.

Members of the Staff and Compensation Committee:

Thomas Burgener	(Chairman, independent)
Heinz Karrer	(AxpO)
Kurt Rohrbach	(BKW)
Conrad Wyder	from 17.12.2008 (independent)

Meetings held in 2008

Board of Directors	11
Strategy Committee	Since 17.12.2008
Finance and Audit Committee	5
Staff and Compensation Committee	3

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swissgrid

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