

Annual Report

Editorial



Adrian Bult, Chairman of the Board of Directors, and Yves Zumwald, CEO

Strategy 2027 – Moving into a highly digitalised, innovative and sustainable future

Dear readers,

The energy crisis in 2022 drew the attention of the general public to the importance of the supply of electricity, the transformation of the entire energy system and the associated challenges. Measures were taken promptly and pragmatically to ensure a secure supply of electricity for Switzerland during the winter. Swissgrid contributed in several ways – for instance by taking on responsibility for the auction of the hydropower reserve and for introducing structural measures to allow the voltage increase of certain lines and the connection of the new reserve power plant in Birr.

These efforts to guarantee the winter supply were important and right, but should not obscure the fact that numerous further steps will be necessary to the long-term security of supply. In order to avert the fundamental problem – a structural energy deficit in Switzerland – it is necessary to accelerate and coordinate the approval processes for the renewal of the grids with those for the construction of new production plants, and to create incentives for the expansion and maintenance of domestic production.

Ensuring the grid-related security of supply in the long term and supporting the Confederation's energy strategy, regardless of EU integration, is a focus of Swissgrid's Strategy 2027, which will be launched in

2023. A further aim is to harness the opportunities offered by the transformation of the energy system towards more renewable and decentralised production: Swissgrid wants to make it easier to tap into the numerous new resources available by introducing digital solutions and developing market platforms, and intends to use their flexibility profitably for system operation.

The transformation of the energy system is both an opportunity and a challenge: system complexity and the volatility of electricity flows are placing increased demands on grid operators. Swissgrid will implement various technical measures and invest in the automation and digitalisation of processes in order to optimise the controllability of the grid. This will enable the company to manage system security risks more effectively as such risks increase due to the lack of integration in Europe.

Switzerland's participation in European processes is essential to ensure a high level of security of supply. Counteracting Switzerland's marginalisation in the European electricity system is another key objective. Swissgrid is therefore looking for new ways to cooperate with European partners on a technical level. Nevertheless, only the conclusion of an electricity agreement can provide a stable legal framework in the long term.

The grid infrastructure is another focus of Strategy 2027. This is because the transformation of the energy system can only succeed if the grids are adapted to new requirements. Swissgrid's goal is to construct and operate the grid even more efficiently and to achieve optimum grid availability and capacity in the future. To do so, it will implement the Strategic Grid 2040, increasingly develop digital solutions for the planning and construction of grid projects, and automate maintenance processes.

Digitalisation and the use of new technologies are the common denominators of these priorities. Innovation and digitalisation are not an end in themselves, but are urgently needed in order to manage the high level of complexity of the electricity system faced by Swissgrid as the grid operator.

In order to achieve the goals of Strategy 2027, Swissgrid will continue to develop its corporate culture and ensure that it has the skills it needs for the future. In addition, Swissgrid will anchor the principle of sustainability even more firmly and broadly within the company. However, even in the new strategy, the issue of security remains central. Over the next five years, Swissgrid will further strengthen the resilience of its core processes.

Strategy 2027 marks the beginning of a new, five-year strategy period for the company. We look forward to tackling the challenges ahead.



Adrian Bult
Chairman of the Board of Directors



Yves Zumwald
CEO

Annual Report

Year in review

The last reporting year was marked by turbulence in the energy sector and an uncertain supply situation in the winter of 2022/2023. Swissgrid made a significant contribution to guaranteeing a secure supply of electricity for Switzerland in the winter months. Despite challenging framework conditions, the company ensured high availability of the transmission grid. To make sure that it will remain able to meet the challenges it faces in the energy system in the long term, Swissgrid developed its Strategy 2027, thereby opening a new, five-year strategy period.



Grid operation

Very high availability of the transmission grid

The availability of the transmission grid was very high in the reporting year. There were no supply disruptions due to a cause in the transmission grid. However, 2022 was characterised by tense grid operations at times, especially in the summer, when a large number of construction projects and maintenance measures were carried out on the transmission grid. In parallel to the outages of grid elements necessary for this purpose, Switzerland recorded very high regional production, which led to considerable grid loads. The lower availability of nuclear power stations in France and exceptional market prices also resulted in high load flows on Switzerland's grid elements at times. Overall, Swissgrid had to carry out more redispatching, especially at the request of German transmission system operators.



Grid operation

Emergency synchronisation of the electricity grids in Ukraine and Moldova with Europe

The transmission systems in Ukraine and Moldova have been synchronised with the European interconnected grid since mid-March. The connection had been in preparation since 2017 and synchronisation was originally planned for 2023. Accelerating the process was technically feasible, and the appropriate measures were taken to successfully guarantee safe and stable operation. As a founding member of ENTSO-E, Swissgrid was in close contact with the European transmission system operators and ENTSO-E, and worked very hard to find solutions in various working groups and committees.



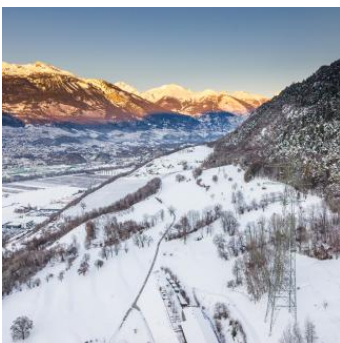
Grid operation

Swissgrid of the future

Preparing grid operations for future challenges

The demands on system operation have increased considerably in recent years – partly because of the growing decentralisation and complexity of the energy system. Swissgrid is implementing its «System Operations» vision to ensure that it can meet the challenges it faces in terms of monitoring and controlling the grid. The aim is to increase the resilience of its teams and to strengthen human resources.

Swissgrid is also launching its «Operational Planning» vision in order to guarantee rising investments in the grid whilst ensuring secure grid operation at the same time. The aim is to coordinate the various construction projects and maintenance measures more effectively and at the same time optimise the planning and implementation of the associated outages. One of the measures to be taken by Swissgrid for this purpose will be to create a platform to automate and digitalise outage planning.



Grid infrastructure

Commissioning of the new line between Chamoson and Chippis

On 30 September 2022, Swissgrid put the new extra-high-voltage line between Chamoson and Chippis into operation after four years of construction. The 30-kilometre-long connection is important for transporting energy from the Valais hydropower plants. The 77 pylons bundle lines from Swissgrid, SBB and Valgrid, enabling the removal of 90 kilometres of existing overhead lines and more than 300 pylons.



Line strengthened between Pradella and La Punt

The upgraded line between Pradella and La Punt has been in operation since November 2022. The two new 380-kV power systems will enable Swissgrid to increase transport capacity and hence security of supply in the canton of Graubünden and in Switzerland as a whole. As an alternative measure, Swissgrid provided considerable support to Engadiner Kraftwerke for the replacement of an overhead line between Pradella and Bever with an underground cable. This means that a total of

Grid infrastructure

1,100 overhead line pylons can be dismantled.



Grid infrastructure

Connection for the Nant de Drance pumped storage power station completed

On 1 April 2022, Swissgrid put the underground cable connection between La Bâtiaz and Le Verney in Martigny into operation. The demanding construction work took almost two years: the 1.2-kilometre-long tunnel was bored with a mini-tunnelling machine at a depth of 12 to 20 metres. Swissgrid was thereby able to complete the third and final section of the line and finalise the connection to the Nant de Drance pumped storage power plant.



Grid infrastructure

Start of construction and progress on several grid projects

In 2022, Swissgrid began upgrading the existing line between Obfelden and Samstagern to 220 kilovolts. The line between Bassecourt and Mühleberg will be upgraded to 380 kilovolts. In 2021, the Federal Supreme Court confirmed Swissgrid's plans for this important line for the greater Berne area and Central Switzerland. Construction work on the new 380-kV line between Mörel-Filet and Ernen has made good progress.



Grid infrastructure

Numerous projects have reached the approval and planning approval procedure stage

Numerous grid projects are awaiting approval and authorisation: Swissgrid has submitted an application to the Swiss Federal Office of Energy to begin the sectoral planning process for the construction project between Flumenthal and Froloo (Therwil). The project between Niederwil and Obfelden is one step further along: the Federal Council has defined the planning corridor and the transmission technology. As far as the grid project between Innertkirchen and Ulrichen is concerned, the Swiss Federal Office of Energy has proposed the planning corridor for the future line. The project between Bickigen and Chippis continues to be delayed. Although the planning approval for the voltage increase to 380 kilovolts was granted by the Swiss Federal Office of Energy, appeals have

been lodged against the project, so the Federal Court must now pass judgement.



Grid infrastructure

Pioneering project – underground cable in the Gotthard Road Tunnel

For the first time, an extra-high-voltage line will be combined with a national road tunnel. In 2022, Swissgrid submitted a planning approval application to lay underground cabling for the Gotthard line. Swissgrid will lay the 220-kV extra-high-voltage line over a total distance of 18 kilometres between Airolo and Göschenen – 17 kilometres of which will be in the second tube of the Gotthard Road Tunnel. Swissgrid will then dismantle over 70 high-voltage pylons and 23 kilometres of overhead line.



Grid infrastructure

Conversion and expansion of switchgear and transformers

In autumn 2022, Swissgrid began construction work at the Mettlen substation (Eschenbach), which is an important node in the Swiss transmission grid. The plan is to build two new 800-MVA transformers. Swissgrid has also submitted the planning approval application for the modernisation of the substation in Biasca in cooperation with SBB. The project involves replacing the open-air system by a modern, gas-insulated switchgear and installing an SBB frequency converter.



Grid infrastructure

Ongoing investments in the existing grid

In order for the transmission grid to operate properly, permanent maintenance is needed in addition to the conversion and expansion of the grid. This not only involves the replacement of conductors, the revision of circuit breakers, corrosion protection for supporting structures, deforestation or avalanche protection, but also the repair of installations after a damaging event.

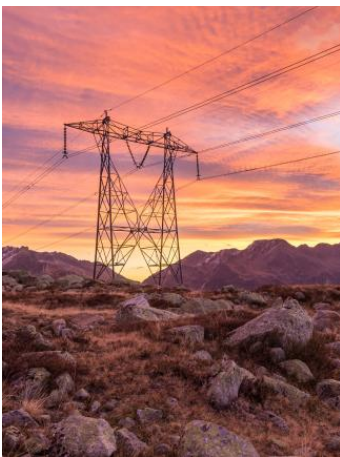


Grid infrastructure

Swiss context

Accelerating grid expansion

The period from the start of a grid construction project through to commissioning is currently at least 15 years. The federal approval and authorisation procedure comprises six phases. Time and again, objections and court proceedings cause projects to suffer significant delays. Swissgrid is committed to ensuring that the approval and authorisation procedures are made more efficient, thereby accelerating grid expansion. This is because the modernisation of the grid infrastructure is crucial for the success of the Confederation’s energy strategy.

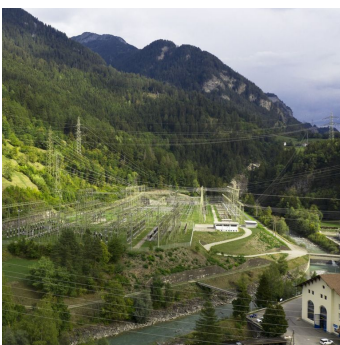


Grid infrastructure

Swissgrid of the future

The grid of tomorrow

To ensure that the grid meets future needs, Swissgrid periodically draws up a multi-year plan known as the Strategic Grid. In the past reporting year, several important milestones were reached in planning the Strategic Grid 2040. Swissgrid defined its principles for long-term grid planning, and in the autumn, the Federal Council approved the Scenario Framework Switzerland (SZR CH) drawn up by the Swiss Federal Office of Energy. At the same time, the distribution system operators regionalised the national specifications in cooperation with Swissgrid. Swissgrid will now use this as a basis for drawing up the Strategic Grid 2040. This is expected to be presented to the public in 2024 following a review by the Federal Electricity Commission (ElCom).



Grid infrastructure

Security

More protection for Swissgrid substations

Swissgrid is increasing the level of protection of its substations with a project to implement structural and organisational measures and install safety systems. During the pilot phase, Swissgrid defined new safety standards, developed IT systems and introduced new processes. Implementation took place at the first substations in the course of the reporting year.



Security

Safety Culture Ladder certification successfully achieved

In 2021, Swissgrid introduced the Safety Culture Ladder (SCL), an assessment method that can be used to measure general safety awareness within the company. Another important milestone followed in the last reporting year: Swissgrid successfully passed the first SCL certification audit and achieved the targeted third level of the maturity model, which comprises a total of five levels.



Security

Business continuity management – being prepared for extraordinary situations

As the owner of one of Switzerland's most critical infrastructures, Swissgrid invests continuously in its resilience: in the area of Business continuity management (BCM), the company set up the necessary organisation to guarantee its core mission in the event of an incident. In November, the company also conducted a comprehensive exercise which involved deploying staff to decentralised assembly points and testing their cooperation on site and with the employees in the grid control rooms, as well as the use of BCM-relevant IT systems.



Security

Another milestone reached in the expansion of cybersecurity

The protection of information and systems that process information is of strategic importance to Swissgrid. This is because the organisation's ability to act and the functionality of the technical infrastructure are based on protected information and systems.

Swissgrid takes numerous measures to ensure comprehensive protection. The management of these measures was subjected to an audit process in 2022, which was successfully concluded with ISO/IEC 27001 certification. The certification is the result of Swissgrid's comprehensive efforts to ensure continuous development in the area of cybersecurity.



Security

High safety awareness – raising awareness among employees

The company is establishing a high safety culture within the company. This requires a common understanding and awareness of the topic of safety. In 2022, Swissgrid therefore held its very first one-day training course for all employees, during which safety-relevant topics were discussed. The focus was on occupational safety and cyber risks, among other things. Training will be organised annually in the future.



Market developments

European context

Swissgrid technically ready for the MARI platform

The MARI platform enables the exchange of fast tertiary control energy within the European internal electricity market. Since August, Swissgrid has been technically ready to be connected to the MARI platform. Swissgrid has specially adapted Switzerland's control energy products, among other things. The platform was put into operation in the autumn. In the absence of an electricity agreement with the EU, however, Swissgrid is not yet connected to the platform.



Market developments

European context

All preparations completed for connection to the PICASSO platform

In June, Swissgrid completed all the necessary technical preparations for connection to the international PICASSO platform. PICASSO enables the exchange of secondary control energy and integrates the netting function previously carried out by the International Grid Control Cooperation (IGCC). For the time being, there is no connection to the European platform due to the lack of an electricity agreement. Swissgrid remains a member of the IGCC until further notice.



Market developments

European context

Progress on consideration in Europe-wide capacity calculations

The lack of a political solution between Switzerland and the EU means that Switzerland is not part of the Italy North and CORE capacity calculation regions relevant to Swissgrid, nor of the coupled power markets. Thanks to the signature of the Synchronous Area Framework Agreement (SAFA), Swissgrid was nonetheless able to start negotiations with the transmission system operators from the Italy North capacity calculation region and conclude bilateral contracts at the end of 2021. These contracts have a term of one year at a time and must always be reapproved by the regulators involved. From a technical point of view, Swissgrid is fully involved in cross-border capacity calculation methods, in redispatching and in safety coordination processes throughout the contract term. The contract with Italy North was renewed at the end of 2022.

As far as the CORE capacity calculation region is concerned, a joint concept was developed with the participating transmission system operators to take account of Switzerland's grid elements in capacity calculations on the northern border, and a prototype was implemented in 2022. The next step will be to finalise the concept, which must still be approved by the transmission system operators and the regulators of CORE.



Market developments

European context

Revision of contracts due to provisions of the European Network Codes

The signature of the Synchronous Area Framework Agreement (SAFA) established a basis to allow Swissgrid to cooperate with European transmission system operators at a technical and operational level despite the lack of an electricity agreement. Swissgrid must therefore ensure that the provisions of the contract and the binding European Network Codes are complied with. The transmission code and the balancing concept have already been adapted for this purpose. In 2022, Swissgrid revised the framework agreements for ancillary services and held a new tender for the restoration cells for automatic start-up and island operation capability.



European context

Regional Operation Security Coordination to increase operational security

The Clean Energy Package resulted in changes to the coordination of pan-European grid operations in 2021. The capacity calculation regions were tasked with developing a Regional Operation Security Coordination (ROSC) methodology. Swissgrid is not part of the «Italy North» and «CORE» capacity calculation regions due to the lack of an electricity agreement. Given its importance for regional grid security calculations, Swissgrid should nevertheless be integrated into ROSC processes.

A higher degree of cooperation should also be achieved by the further development of the current regional security coordinators, such as TSCNET, into the future Regional Coordination Centres (RCC). The RCC will be formed in the new grid operation regions, which are referred to as System Operations Regions (SOR). Swissgrid is not part of the SOR and therefore cannot participate in the RCC. As a current shareholder of TSCNET, Swissgrid is currently endeavouring to find a way to continue to play a role in shaping TSCNET.



European context

70% rule – a sharp rise in the challenges facing Swissgrid

As part of the Clean Energy Package, the transmission system operators in continental Europe are required to make 70% of cross-border capacity available for energy exchange by the end of 2025 at the latest. If Switzerland is not fully taken into account in the capacity calculations for cross-border trade by then, unplanned electricity flows will increase even further. Likewise, neighbouring countries could be forced to restrict their cross-border capacities towards Switzerland if necessary. This is particularly problematic in winter, when Switzerland is dependent on imports and corresponding cross-border capacities.



European context

Without an electricity agreement, only limited participation is possible in Europe

The lack of an electricity agreement prevents Swissgrid from participating in many European processes and platforms. For example, the company is currently unable to connect to the MARI and PICASSO platforms, which are relevant for control reserves, and its future participation in TERRE is also at risk. Furthermore, Swissgrid is not part of Flow-Based Market Coupling or the CORE capacity calculation region bordering Switzerland. Nor is the company included in the System

Operations Regions, which means that it cannot participate in the Regional Coordination Centres that will play an important role in the coordination of grid operations in the future.

Swissgrid's isolation increases the risk of unplanned electricity flows in the Swiss grid. The company is therefore committed to using all the means at its disposal to be able to play an active role. Agreements have been reached, for example, to ensure that Switzerland is taken into account in the capacity calculation for Italy North. Swissgrid has also taken legal action against decisions by EU authorities for reasons of system security. In the longer term, however, these measures are not an adequate substitute for an electricity agreement.



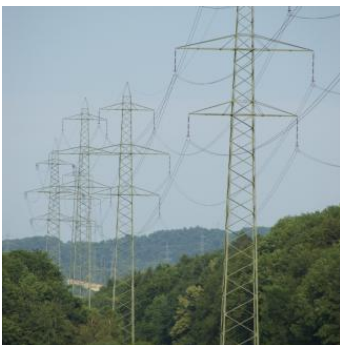
Market developments

Swissgrid of the future

Equigy – pilot project with ewz successfully completed

In the last reporting year, Swissgrid and ewz carried out a pilot project with the crowd balancing platform Equigy. This platform, which Swissgrid founded with TenneT and Terna, takes advantage of blockchain technology to make it easier to bundle and control small, flexible energy resources and to use them to stabilise the grid.

The focus of the pilot project was to determine how these energy sources can be used to stabilise not only the transmission grid, but also the distribution grid, and how cooperation between transmission and distribution system operators can be automated. This type of cooperation will become even more important in the future in order to be able to cope with the increasing decentralisation and associated complexity of the energy system. The next step will be for Swissgrid to carry out further pilot projects with more participants.



Grid infrastructure

Swissgrid of the future

Pylonian – knowing the condition of pylons in detail

In 2021, Swissgrid launched an innovative project, Pylonian, that involved placing Internet-of-Things sensors on pylons to measure variables such as pylon vibrations, pylon inclination, temperature and solar radiation. In addition, data-driven algorithms are being developed to detect parameters such as patterns and anomalies from the measured values. Swissgrid's aim is to monitor the condition of the pylons over their entire life cycle and therefore to be able to deploy maintenance work in a more targeted manner. Seven pylons have been equipped with the sensors so far, and their data is already being analysed on a continuous

basis. Swissgrid is now investigating the gradual expansion of the project to hundreds or thousands of pylons.



Grid operation

Swissgrid of the future

Compose – automated processes in outage planning

The aim of Swissgrid’s COMPOSE research and development project is to automate and optimise the outage planning of grid elements. At the same time, a decision-making aid for measures in the event of possible grid congestion is to be created. Planning outages is highly complex, as it affects the load flows in the grid in many ways. The use of mathematical optimisation and algorithms lends itself to this environment.

In 2022, Swissgrid developed a prototype that can simulate the effects of outages and identify the best time windows for their implementation. The next step will be to develop this prototype even further and to expand its functionalities.



Grid operation

Swissgrid of the future

eflux – visualisation of the current grid state

The eflux project aims to display the grid state in an easy-to-read way and make it accessible to new target groups on devices such as laptops, smartphones and tablets in addition to big screens in grid control rooms.

A cross-disciplinary team developed a new, schematised representation of the transmission system, based on the route map of the London Underground. The prototype provides a rapid guide and allows problem areas in the grid to be identified quickly. This simplifies the work of the operators, who have to recognise situations in the grid within a short time, analyse them and work out solutions. More specifically, the functionalities available include a zoomable display, animated load flows and time series diagrams. These options will now be made available to all employees as part of a follow-up project.



Swissgrid of the future

Company

Strategy 2027 – the start of a new, five-year strategy period

In the last reporting year, work was carried out throughout the company on Strategy 2027, which heralds a new five-year strategy period. In the coming years, Swissgrid will rely on its proven strengths with four ongoing priorities: «Security of Supply», «Grid Transfer Capacity», «Safety & Security» and «Operational Excellence». At the same time, the company is establishing a new emphasis by positioning «Innovation and Digitalisation» as an additional focus area and promoting the sustainable development of the company.

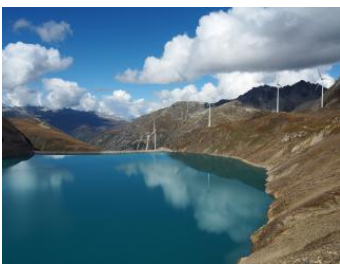


Swissgrid of the future

Company

Corporate Social & Environmental Responsibility – part of the new strategy

Swissgrid has set itself the goal of anchoring sustainability even more firmly within the company. By integrating Corporate Social & Environmental Responsibility (CSER) into its Strategy 2027, Swissgrid has taken an important step in highlighting sustainable development throughout the company. In the last reporting year, Swissgrid prepared a materiality analysis and selected a number of relevant Sustainability Development Goals. Swissgrid thereby laid the foundation for prioritising CSER measures and implementing them in all areas of the company.



Swiss context

Measures for a secure supply of electricity – expert report by Swissgrid and the industry

In association with the energy producers AET, Alpiq, Axpo, BKW and Repower, Swissgrid presented an expert report at a session event held by the federal parliament in spring 2022. The report outlined possible solutions for guaranteeing a supply of electricity in Switzerland that would be as secure and as CO₂ neutral as possible in the long term. The analysis was also presented to the Swiss Federal Office of Energy and the Swiss Federal Electricity Commission (ElCom).

The conclusion was that the «Federal Act on a Secure Electricity Supply from Renewable Energies» consolidation legislation goes in the right direction, but is not sufficient to ensure supply, especially in winter. The participating companies called for a build-up of reserves, for example by means of back-up power plants, and requested an acceleration of the approval processes for renewing the grids and for building new

production plants. Another important request was that an intergovernmental solution should be defined for the technical integration of Switzerland, as an alternative to an electricity agreement.



Swiss context

Procedures for hydropower and wind energy plants to be accelerated

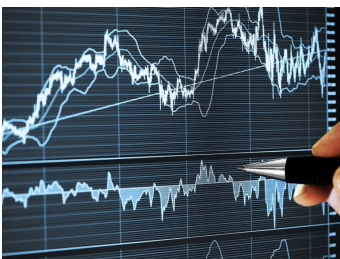
In February 2022, the Federal Council launched a consultation process on legislation to accelerate the introduction of renewable energy resources. The aim of the amendment to the Energy Act is to simplify and streamline the planning and authorisation procedures for the most important hydropower and wind energy plants. The expansion of photovoltaics should also be driven forward. Swissgrid presented its view on this amendment to the Energy Act in May 2022. Swissgrid welcomes the measures, but asks for a similar acceleration in the authorisation procedures for the grids, and submitted specific proposals to this end.



Swiss context

The Federal Council entrusts Swissgrid with electricity monitoring for the National Economic Supply

In view of a possible electricity shortage in Switzerland in the winter of 2022/2023, the Federal Council decided on 4 May 2022 that Swissgrid should develop a new monitoring system for the Energy Division of the National Economic Supply. The aim of this system is to obtain information on the current supply and market situation in Switzerland. In addition, it is intended to provide analyses regarding self-sufficiency and show how long Switzerland could ensure the supply of electricity without imports. Swissgrid put the system into operation on time at the end of the year.

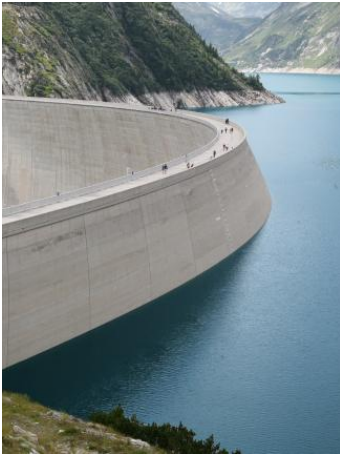


Swiss context

Bundesrat überträgt Swissgrid das Strom-Monitoring für die wirtschaftliche Landesversorgung

Im Hinblick auf eine mögliche Strommangellage in der Schweiz im Winter 2022/2023 beschloss der Bundesrat am 4. Mai 2022, dass Swissgrid für den Fachbereich Energie der wirtschaftlichen Landesversorgung ein neues Monitoring-System entwickeln soll. Das Ziel des Monitorings ist es, Informationen über die aktuelle Versorgungs- und

Marktsituation in der Schweiz zu gewinnen. Zudem soll es Analysen zur Eigenversorgung liefern und aufzeigen, wie lange die Schweiz die Stromversorgung ohne Importe sicherstellen könnte. Swissgrid nahm das System planmässig Ende Jahr in Betrieb.



Grid operation

Swiss context

Preparations for a secure supply of electricity for Switzerland in winter

The conflict in Ukraine and the significant reduction in gas deliveries to Europe as a result, combined with turbulence on the energy markets, triggered an energy crisis in 2022 that also affected Switzerland. Swissgrid shared the Confederation's assessment that there were uncertainties with regard to the secure supply of electricity in Switzerland in the winter of 2022/2023.

The Federal Council enacted various measures to increase the security of supply in the short term and assigned new roles to Swissgrid. For example, the company was tasked with overseeing the auction of the hydropower reserve in October 2022. In addition, Swissgrid took structural measures to ensure that the voltage on the lines between Bickigen and Chippis and between Bassecourt and Mühleberg could be temporarily increased following the necessary approval. The connection of the reserve power plant in Birr to the transmission grid was also implemented by Swissgrid. What is more, the company took over the operational management of the possible use of emergency power groups as an additional reserve.

Swissgrid did everything in its power to help to ensure a reliable supply of electricity in Switzerland. The company took additional measures such as the early procurement of control power, for instance. Swissgrid also set up an internal task force right away at the beginning of July 2022.



Swissgrid issues another corporate bond

On 24 May 2022, Swissgrid issued another bond on the capital market with a volume of CHF 175 million. The proceeds of this bond will be used to repay current financial liabilities and to finance ongoing investments and procurement costs.

Company



Company

Election of two new Board members

Two new Board members were elected at the Annual General Assembly on 18 May 2022. Felix Graf, CEO of NZZ since June 2018, was newly elected to the Board of Directors as an independent member. He succeeds Isabelle Moret. In addition, Martin Koller, who has been with Axpo Holding since 2012, was elected as industry representative to replace Kerem Kern.



Grid infrastructure

Company

Maintaining dialogue with the industry and the population

It is particularly important to Swissgrid to provide transparent and continuous information about its activities, and in particular about its construction projects. In 2022, Swissgrid held information events about planned construction projects between Innertkirchen and Ulrichen, Flumenthal and Froloo (Therwil), and Airolo and Göschenen, among others. The temporary visitor centre in Bözberg to provide information about the opportunities and challenges of underground cables and overhead lines welcomed its final visitors in June 2022. The company was present at various trade fairs such as the Foire du Valais and the Vifra in Valais, the Assis européennes de la transition énergétique in Geneva and the LUGA in Lucerne.

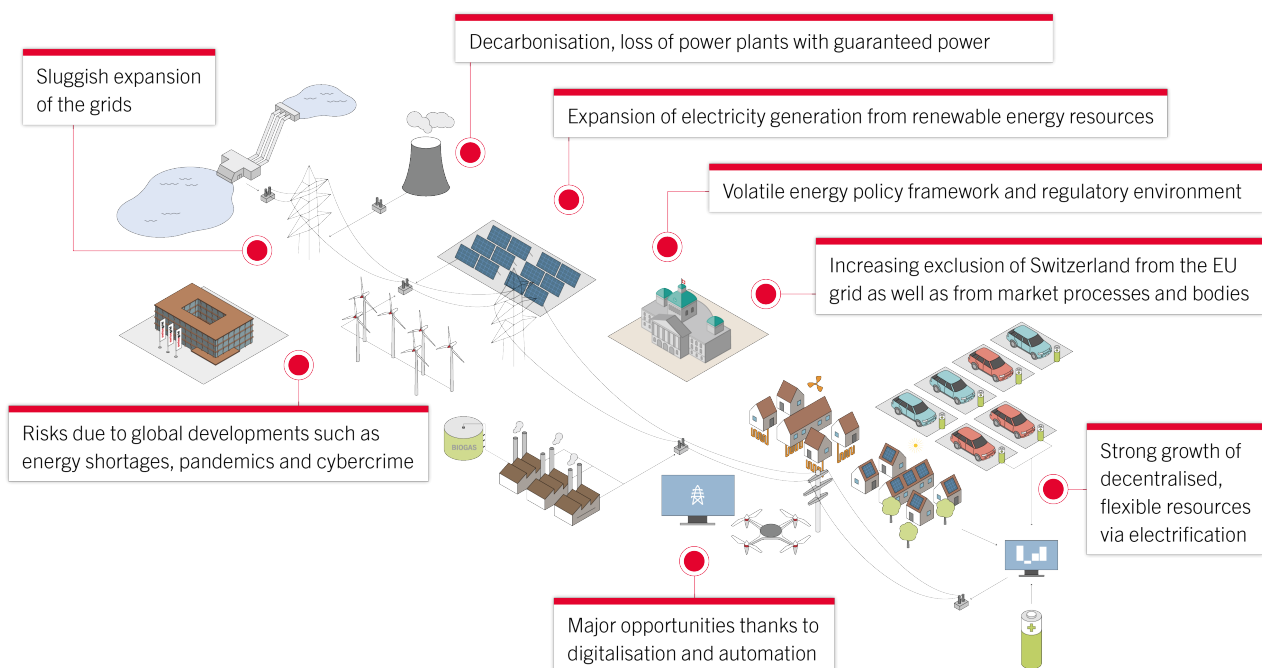
Swissgrid also remained in close contact with the industry: major events were held in Castione and for the commissioning of the line between Chamoson and Chippis. In addition, Swissgrid organised events in hybrid or virtual format such as the grid forum, an industry webinar, the grid usage conference and the partner meeting of the balance group management.

Annual Report 2027 Strategy

We are helping to shape the energy future – safely, innovatively and sustainably

The year 2023 is the starting point for a new, five-year strategy period for Swissgrid. The last ten years have been marked by finalising the transfer of the grids from the previous owners and completing the subsequent development and consolidation phase. This has enabled the company to establish a solid basis from which to start tackling the challenges it faces in a rapidly changing energy system.

The energy system in transition – an analysis of the need for strategic action



Following a long period of stability, there has been considerable movement in the electricity industry in the past 20 years. The EU's decision to integrate the European power markets and to decarbonise the energy industry triggered fundamental change. Pressure to accelerate the transformation of the energy system and decarbonisation has increased more and more due to the newly formulated climate targets within the framework of the «European Green Deal».

The energy policies of the EU and Switzerland are once again under scrutiny: geopolitical developments, the shortage of gas supply, limited power plant capacities in winter and exceptional developments in wholesale prices for gas and electricity have reinforced the aspiration for national energy autonomy. It is to be expected that the power plant park, and hence the entire energy system, will continue to undergo change in the coming years.

These developments affect grid operators in several ways: the more rapid expansion of renewable energy production leads to significant changes in production patterns and volatile electricity flows. This poses great challenges for power system control, which means that sufficient reserve power and higher automation are needed to ensure grid stability. The political and regulatory environment requires grid operators to assume new tasks at very short notice. At the same time, the statutory framework conditions prevent any important changes from being made. The approval and authorisation procedures for grid projects, which remain lengthy, are just one example. This is slowing down the urgently needed adaptation of the grid infrastructure to the new framework conditions.

These challenges for Swissgrid are accentuated by the lack of an electricity agreement between Switzerland and the EU. Switzerland is increasingly excluded from important EU market mechanisms. This results in a greater risk of more unplanned electricity flows, a lack of consideration in security-relevant system processes and a reduction in import capacities.

Grid operators face challenges not only due to the changes in the energy system, but also on account of global developments. Threats such as the consequences of climate change for the grid infrastructure, pandemics or cybercrime make it clear that operators of critical infrastructures must have an exceptionally high level of protection and readiness. The demands placed on the resilience of these companies and on their security arrangements, emergency response measures, business continuity management and crisis management remain high.

Digitalisation offers a response to the increasing complexity of the grid operators' environment. For example, the desired digital transformation will make it possible to connect many of the new, flexible resources and to integrate them profitably into system operation. End-to-end digital processing of the value chain opens up opportunities within the company: digital solutions can be used to achieve efficiency gains in the expansion and maintenance of the grid, for instance. The potential of digitalisation is particularly great for grid operators due to their central role in the energy system. This opportunity must be seized.

Five priorities

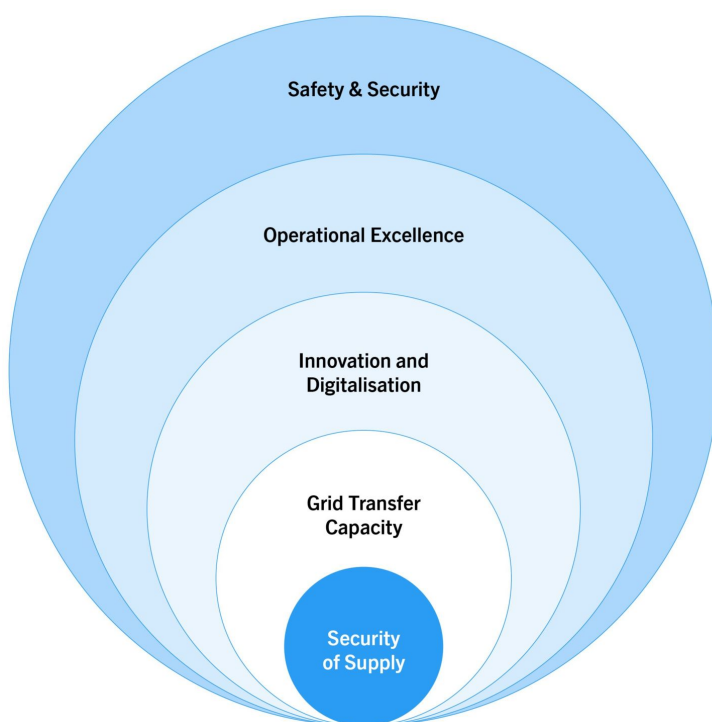
Swissgrid has defined five closely interrelated priorities for its Strategy 2027. Four of these were taken over from the previous strategy period and have been adapted to the current and future framework conditions. A new focus on «Innovation and Digitalisation» has also been added.

The new strategy focuses on «Security of Supply» with measures to ensure grid-related security of supply in the long term, regardless of the degree of integration into the European processes of the EU,

while at the same time supporting the Confederation's energy strategy. «Grid Transfer Capacity» is equally important. Its aim is to increase the capacity of the grid in line with demand and to construct and operate the grid even more efficiently in the future. A comprehensive package of measures with a focus on innovation and digitalisation lays the necessary foundations for implementing the desired digital transformation.

In order to successfully implement Strategy 2027, the culture and skills within the company must keep pace with future requirements and continue to be developed. These areas of action are addressed by «Operational Excellence» in parallel with the sustainable development of the company.

Safety is a top priority for Swissgrid, given its responsibility for one of Switzerland's critical infrastructures. Its further development can only succeed if risks and dangers relevant to the company are recognised and reduced at an early stage. The «Safety & Security» priority strives to ensure a high level of resilience and comprehensive protection of all Swissgrid resources.



The priorities in detail

«Security of Supply»

«Swissgrid guarantees a high level of grid-related security of supply regardless of its integration into European processes. Swissgrid supports the Confederation's energy strategy.»

Networking and cooperation with Europe are crucial for a high level of security of supply. As Swissgrid is increasingly marginalised in EU processes due to the lack of an electricity agreement, the company is committed to achieving the highest possible level of integration at a technical level. Bilateral agreements with neighbouring transmission system operators ensure that Switzerland is taken into account in European grid security processes and mechanisms, among other things. An electricity agreement with the EU nonetheless remains the ultimate goal for Swissgrid.

The demands on system operation are increasing due to the transformation of the production mix and the decentralisation of the electricity system. To increase the controllability of the grid, Swissgrid is

taking structural measures, changing operational processes and using digital solutions for data-driven decision-making in system operation. This package of measures will also help Swissgrid to cope with rising system security risks if Switzerland were to be further excluded from European processes.

The many decentralised resources in the energy system represent not only a challenge, but also an opportunity for grid operators. Swissgrid wants to harness the potential of these resources more effectively in the future: it plans to create market platforms in association with the industry, to make these platforms easier to access by means of digital solutions, to better coordinate their flexibility and to use them profitably for grid operations.

«Grid Transfer Capacity»

«Swissgrid constructs and manages the grid efficiently and increases its capacity in line with demand.»

The transformation of the energy system can only succeed if the grid infrastructure is adapted to the new framework conditions. To this end, Swissgrid is already planning the Strategic Grid 2040 and will begin its implementation as soon as it has been reviewed by the Federal Electricity Commission. The aim of expanding the grid is to adjust its capacities to meet demand and to reduce congestion. Swissgrid will implement more construction projects and put them into practice more quickly by standardising and optimising processes and by using digital solutions for planning and construction. Collecting and evaluating real-time measurement data will also help make it possible to increase grid capacity.

Maintenance is being automated in many areas – for example by using drones and robots. A completely digitalised grid image – a digital twin of the physical grid – will provide the basis for establishing data-driven plant management in the future. This will allow the status of plants to be monitored more precisely over the entire life cycle and enable the grid to be operated in a more risk-based and efficient manner. It will become possible to shorten line outages and increase the availability of the grid, for example.

«Innovation and Digitalisation»

«Swissgrid is developing into a highly digitalised, innovative company.»

The complexity and volatility of the electricity system are constantly increasing due to ever greater decentralisation. Digitalisation offers the opportunity to manage this high complexity and volatility whilst increasing the efficiency of many processes. With its new «Innovation and Digitalisation» priority, Swissgrid is establishing the conditions for the desired digital transformation throughout the company.

Firstly, this concerns technological and data-related conditions, such as automation tools and the systematisation of data management. And secondly, it refers to an increase in implementation strength, partly thanks to the more widespread use of agile development methods. In addition to digitalisation, the focus is on the development and implementation of innovations. In order to open up the innovation process, an ecosystem is being built as a collaborative network in which innovations are driven, developed and shared with partners. Furthermore, a culture of innovation is being established to promote the skills and potential of employees whilst actively and sustainably pushing ahead with digitalisation ideas and transformation projects within the company.

«Operational Excellence»

«Swissgrid acts sustainably throughout the company and is constantly developing the culture and skills within the company.»

Swissgrid is laying the foundations for achieving the goals of its Strategy 2027 with its «Operational Excellence» priority: this will enable Swissgrid to act even more sustainably throughout the company going forward. Swissgrid now groups together all areas of sustainability management under «Corporate Social & Environmental Responsibility». Among other things, a targeted selection of UN goals – the Sustainable Development Goals – is being addressed, and comprehensive sustainability reporting is being developed according to the standards of the Global Reporting Initiative.

«Operational Excellence» also endeavours to strengthen the corporate culture and ensure that the necessary skills will be available within the company in the future. Identified skills gaps are closed by means of programmes tailored to individual needs. Thanks to these and other measures, Swissgrid is simultaneously increasing its attractiveness as an employer, attracting the talent it needs and strengthening the identification of existing and future employees with the company. The company is also investing in relationships with other relevant external stakeholders such as the industry, politicians and the general public to strengthen their support for the company's concerns.

«Safety & Security»

«Swissgrid is strengthening the resilience of its core processes.»

Security is a top priority for Swissgrid, as the operator of a critical infrastructure. The company is strengthening the resilience of its core processes as part of the «Safety & Security» priority. In order to minimise or eliminate any threats to the safe operation of the transmission system, measures are taken in areas of action resulting from changes in the threat level or from increases in requirements.

This includes raising the level of protection in substations by means of structural and organisational measures and installing safety systems. In the area of Business Continuity Management, Swissgrid is developing additional solutions to safeguard its core mission in the event of an incident. As far as cybersecurity and crisis management are concerned, the focus is on implementing further measures to achieve the desired goals. Safety is deeply anchored in the corporate culture and therefore in the attitudes and actions of Swissgrid employees.