

Annual Report

Editorial

Transformation, digitalisation, security – the foundations have been laid



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

Dear readers,

In its «Action Plan for Grids», the European Union has given an estimate of EUR 584 billion for the investments needed in the European electricity system as a whole by 2030. At the same time, it wants to more than double power generation from new renewable resources. Europe is forging ahead at high speed to make the energy transition possible and to reach the target of net zero. Switzerland is in the middle of doing the same thing, and is pursuing equivalent goals as part of its Energy Strategy 2050. Due to its close links to the continental European interconnected grid and its energy policy regulations, Switzerland is dependent on cooperation with European partners. If this cooperation is to take place on an equal footing, an electricity agreement is needed between Switzerland and the EU. In the long term, this is the prerequisite for ensuring a high level of security of supply in Switzerland and in Europe.

«Electricity flows through us» is our motto and is what drives us every day. However, the transformation of the energy system increases the complexity of this undertaking. The grid has to overcome additional challenges in the production, feed-in, distribution and storage of electricity. Swissgrid is taking these challenges into account in its «Strategy 2027».

The modernisation and high controllability of the transmission system are key success factors for ensuring grid-related security of supply. More efficient implementation of grid projects and optimal management of the available grid capacity are essential prerequisites. To further these objectives, Swissgrid is pressing ahead with digitalisation in all areas of the company and investing in the further development of its employees and its corporate culture.

In the reporting year, we were able to lay the foundations for achieving important milestones in Strategy 2027. We worked hard towards integrating Switzerland into European processes, we defined the requirements for the future transmission system as part of our grid planning (Strategic Grid 2040) and we made significant investments in security, particularly in grid systems and cybersecurity. Thanks to our projects in the fields of technology and corporate culture, we also created a strong basis for an innovative and digitalised Swissgrid.

To prepare for a potentially uncertain supply situation in the winter, the federal government had already assigned new roles to Swissgrid in 2022. We continued to fulfil these tasks in the reporting year, thereby making an important contribution to ensuring a reliable supply of electricity for Switzerland.

As the national grid operator, we have always focused our business activities on the long term. As part of our sustainability management concept, we prepared a Sustainability Report last year that took into account the standards of the Global Reporting Initiative. Now, for the first time, we are publishing an Annual Report with integrated non-financial reporting.

We welcomed Nell Reimann as a new member of the Executive Board in 2023, as the successor to Maurice Dierick as Head of Business Unit Market. Nell has held various management roles at Swissgrid since 2016, has in-depth knowledge of system operation and is well connected both nationally and internationally.

We would like to say a big thank you to all our employees, who once again achieved extraordinary things in 2023. We look forward to leading Swissgrid into the energy future together.



Adrian Bult
Chairman of the Board of Directors



Yves Zumwald
CEO

Annual Report

Year in review

Swissgrid can look back on a successful reporting year. The commissioning of the line between Bassecourt and Mühleberg was a particular highlight. To ensure that the grid meets future requirements, Swissgrid also worked intensively on planning the Strategic Grid 2040. In order to promote digitalisation and innovation, projects were launched in both the technological and corporate culture areas. Swissgrid consistently upheld its commitment towards achieving greater integration into European processes.



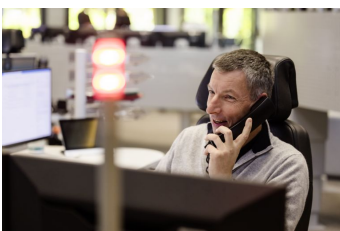
Grid operation

High availability of the Swiss transmission grid

In the past reporting year, Swissgrid guaranteed an availability of the transmission system of well over 99.9%.

At times, 2023 was characterised by tense grid operations, especially in the summer. This was due to grid elements being taken out of operation for construction and maintenance work and to a high level of production. As a result, Swissgrid had to use more redispatching to eliminate grid congestion.

The frequency in the European interconnected grid deviated from the target frequency of 50 hertz much more frequently in 2023 than in previous years. These frequency deviations were triggered in particular by the feed-in of renewable energies at unforecasted levels and by strikes in France. Procedures coordinated between European transmission system operators for dealing with frequency deviations therefore had to be applied several times. Swissgrid coordinated the restoration of the frequency to the normal range in cooperation with Amprion.



Grid operation

Grid operations – rising to meet new challenges

Swissgrid is facing ever greater challenges in system operation. In response, it is implementing its «Vision System Operations». Important milestones were reached in 2023: new personnel was hired to strengthen the division, and the foundations for new career opportunities

were laid.

«Vision Operational Planning» aims to ensure more efficient coordination of the outages required in connection with rising investments in the grid. The first steps were initiated in 2023.

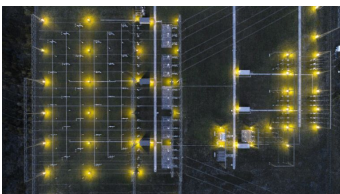


Grid operation

European context

Comprehensive revision of operating agreements and the Swiss Operational Handbook

The signing of the Synchronous Area Framework Agreement (SAFA) in 2019 laid the foundations for further cooperation between Swissgrid and European transmission system operators at a technical and operational level. Swissgrid had to make changes to grid operational planning and real-time operation processes as a result. Swissgrid started revising its operating agreements and the Swiss Operational Handbook in 2022 in association with representatives of 18 power plant and distribution system operators directly connected to the transmission system and with SBB. Good progress was made in the course of the year. The consultation process for the finalised documents is planned for 2024.



Grid infrastructure

Investments in the grid

In order to increase grid security and security of supply in Switzerland in the long term, Swissgrid invests between CHF 200 million to CHF 290 million in the renovation and expansion of the transmission system each year. Swissgrid also ensures ongoing maintenance of the existing infrastructure. In addition to inspection and maintenance work, this also includes the replacement of conductors, the revision of circuit breakers, corrosion protection for supporting structures, deforestation or avalanche protection, as well as the repair of installations after a damaging event. Swissgrid invests a total of around CHF 50 million a year for these purposes.



Grid infrastructure

Commissioning of the Bassecourt – Mühleberg line

The voltage increase on the existing line between Bassecourt and Mühleberg from the previous level of 220 kV to 380 kV is an important milestone in preparing the Strategic Grid 2025. This work is essential for ensuring security of supply in Central Switzerland – especially in the

winter months. The line was successfully put back into operation at the end of November 2023.



Grid infrastructure

Greater security of supply for the left bank of Lake Zurich and the city of Zurich

Swissgrid is expanding the 150 kV line between Samstagern, Thalwil, Waldegg (Zurich) and Obfelden to 220 kV in stages. This will increase the transport capacity as well as the security of supply for the city and the entire Zurich region. Construction work progressed as planned in 2023 on the section between Schweikrüti (Thalwil) and Kilchberg. A section of the line in Gattikon (Thalwil) was successfully put into operation at the end of October 2023, initially still at a voltage of 150 kV. The current line in this section, which partly runs through local recreation and residential areas, will be dismantled by the end of 2024.



Grid infrastructure

Progress on the grid project between Mörel and Ulrichen

Swissgrid is modernising the extra-high-voltage grid in the Valais. A new 380-kV extra-high-voltage line is being built along a distance of around 30 kilometres between Mörel-Filet and Ulrichen. In the year under review, the remaining six of a total of 27 electricity pylons were erected on the section between Mörel-Filet and Ernen and the conductors were installed. The commissioning of the line section between Mörel-Filet and Ernen will be possible in 2025 at the earliest, as soon as Valgrid's new 65 kV substation in Ernen is ready for operation. The 237 pylons on Swissgrid's current 220 kV line and the 65 kV line will then be dismantled, which will provide noticeable relief for the residential area in the Bister, Gremiols and Ernen region.



Grid infrastructure

Dismantling work in the Rhone plain

The dismantling of the old 220 kV line between Chamoson and Chippis began in the fourth quarter of 2023 and will continue until spring 2024. Swissgrid will remove three further lines at lower voltage levels by 2027 as a compensation measure for the new 380 kV line that has already been put into operation. This means that 90 kilometres of overhead lines and 322 pylons will disappear completely from the Rhone plain. The new 380 kV Chamoson – Chippis overhead line will be used to transport energy from large hydropower plants and to connect the Valais to the Swiss and European extra-high-voltage grid.

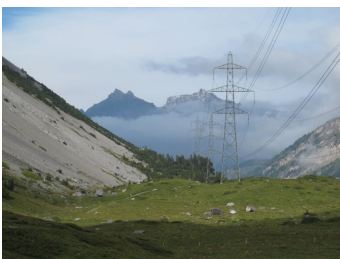


Grid infrastructure

Swiss context

Grid connection for Birr reserve power plant

In 2022, the federal government decided on various measures to counteract an electricity shortage and to ensure security of supply in the winter. These measures included the construction of the Birr reserve power plant with total power of almost 250 MW. Swissgrid created a new grid connection so that the energy from the mobile gas turbines could be fed into the transmission system via the 220 kV substation in Birr. The grid connection has been ready since 24 February 2023 after a record construction time of less than six months. The reserve power plant would therefore have been operational in a potentially sensitive phase at the end of the winter of 2022/2023.



Grid infrastructure

Swiss context

Temporary voltage increases

The Federal Council decided to temporarily increase the voltage of the Bickigen – Chippis (Gemmi line) and Bassecourt – Mühleberg transmission lines in order to strengthen security of supply in extraordinary situations in the short term. Swissgrid had prepared itself technically and operationally to operate both lines at 380 kV on a provisional basis. In January and February 2023, successful test operation at a voltage of 380 kV took place on both lines. This measure would have allowed additional electrical energy to be fed into the transmission system in the event of a critical supply situation.



Grid infrastructure

Grid projects in the approval process

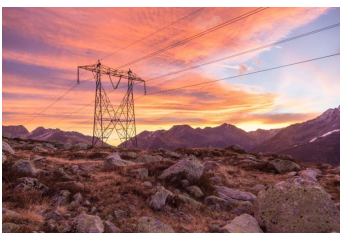
A large number of grid projects are in the approval process: in the spring of 2023, Swissgrid and SBB submitted a planning application for the replacement of the high-voltage submarine cables between Brusino and Morcote. Work is scheduled to begin in 2024. On 25 February 2023, the Federal Council approved extensive underground cabling over a length of around 23 kilometres for the Innertkirchen – Ulrichen line in its sectoral plan for transmission lines (SÜL). The underground cabling will be installed either in existing and newly constructed tunnels (main variant) or in the multifunctional Grimsel railway tunnel. In September 2023, the Swiss Federal Office of Energy and Swissgrid jointly presented the planning corridor for the «All'Acqua – Maggiatal – Magadino» grid project to the public. The approval processes for the Chippis – Mörel line and for the voltage increase on the Bickigen – Chippis line (from 220 to 380 kV) are still pending at federal level.



Grid infrastructure

Groundbreaking ceremony at the Bonaduz substation

The groundbreaking ceremony on 16 June 2023 marked the start of work to modernise the Bonaduz substation and install a new transformer. This new transformer will increase the operational flexibility of the Bonaduz substation and improve security of supply in the canton of the Grisons and the rest of Switzerland. The transformer will connect the 380 kV grid with the 220 kV grid. Work is expected to last until the end of 2025.



Grid infrastructure

Swissgrid of the future

A grid for a secure energy future

The renovation of the energy system is placing new demands on the grid. In the reporting year, Swissgrid pressed ahead with the planning of the Strategic Grid 2040. The aim is to detect and eliminate congestion in the transmission system at an early stage. The necessary regional target values for production and consumption were determined in consultation with electricity producers and grid operators connected to the transmission system. Based on this data, Swissgrid uses market and grid simulations to determine the optimisation and reinforcement requirements for the Swiss transmission grid for the target year of 2040. In April 2024, Swissgrid is expected to submit the results of this periodic multi-year planning to the Federal Electricity Commission, which will review their adequacy and appropriateness. Swissgrid will then publish the Strategic Grid 2040 in 2025.



Security

Creating a good safety culture

A good safety culture requires a willingness to address safety issues in depth. That is why Swissgrid organised another edition of the «Safety & Security Days» in the current reporting year, during which employees received practical training and were given the opportunity to reflect on safety-conscious behaviour.



Security

Emergency communication network for crisis situations

The emergency communication network (NKN) went live on schedule on 1 August 2023. This represents a significant milestone in business continuity management at Swissgrid. The NKN covers the whole of Switzerland and connects important Swissgrid locations. The main role of the NKN is to ensure that affected regions can be reached in the event of regional outages and interruptions to Swissgrid's main communication network so that important processes can be maintained.



Grid operation

Swissgrid of the future

Closer coordination between grid operators

As a result of the energy transition, the number of flexible energy resources in the grid is growing. Swissgrid and ewz carried out a pilot project in collaboration with Equigy to try and make better use of these flexible resources for stable grid operation and to increase coordination efficiency. The pilot project was successfully completed in December 2022. The next phase, which will run until the end of 2024, will involve collaboration with other industry partners.

Further projects are planned or have already been launched: the «OPTESO» project aims to develop a decentralised mechanism to allow grid operators to jointly carry out grid security calculations. In the reporting year, Swissgrid identified potential use cases during the detailed concept phase and developed a prototype to demonstrate the mechanism. In addition, the project team made progress on the prototype as part of the pilot realisation phase and began using real data from the project partners.



Grid infrastructure

Swissgrid of the future

Better monitoring of the condition of pylons

In 2021, Swissgrid launched «Pylonian», the Internet of Things innovation project. This involved placing sensors on pylons to measure parameters such as pylon vibrations and inclination, temperature and solar radiation. At the end of the reporting year, Swissgrid collected real-time data from selected test pylons over a period of one and a half years and linked data anomalies with real events. The introduction of «Pylonian 2.0» increases the piloted number of sensor types to cover additional application scenarios. The integration of new telemetry data makes it possible to monitor the condition of the pylons more effectively and to optimise parameters such as forecasting of the decentralised feed-in. The newly launched «Pylonian 2.0». project increased the piloted number of sensor types to cover additional application scenarios.



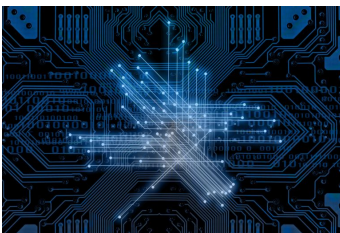
Grid operation

Swissgrid of the future

Photovoltaic forecasts to improve system operation

The «Energy Perspectives 2050+» envisage a significant expansion of photovoltaics (PV) in Switzerland. This expected growth will lead to considerable challenges for system operation. Swissgrid launched a project designed to significantly improve the internal data basis for PV feed-in.

The idea is to produce forecasts with a high regional and temporal resolution, based on publicly available data on the PV systems installed in Switzerland. The forecasts will be made available internally via the Swissgrid data platform. This data can be used for various purposes, for example to assess the effects of PV feed-in on load flows and on balancing more effectively. This will create direct added value for system operation. The first prototype was realised in the spring of 2023. The foundations for the productive environment on the Swissgrid data platform were laid in the autumn.



Swissgrid of the future

Sharing data – creating added value

With its Strategy 2027, Swissgrid is driving forward the digitalisation and automation of processes as well as the scalable, cross-domain utilisation of data. It is also laying the groundwork for the use of new technologies, accelerating the implementation times of data-related applications, facilitating collaboration with partners and establishing an efficient operating model for data-related applications.



Swissgrid of the future

Company

Anchoring innovation within the company at every level

The rapidly increasing complexity and volatility of the electricity system is resulting in more and more time-critical system interventions. To successfully overcome these challenges in the future, innovative approaches are needed at a technical and organisational level. In response to this, Swissgrid introduced a focus on «Innovation and Digitalisation» in its Strategy 2027.

Swissgrid drove forward various innovation projects with partners in the reporting year.

The company also introduced measures to strengthen its culture of innovation. Activities such as the «Inspiration Talks» series of events, the «Ideas Forum» and the «Innovation Days» provided new impetus and encouraged interaction. This momentum should allow employees to continue to take the initiative and to develop projects or new solutions from ideas in the future.



Swissgrid of the future

Company

Fit for the future thanks to skills management

According to the World Economic Forum's «Future of Jobs Report 2023», 44% of employees will need additional or different skills in the next five years, and six out of ten employees will have development and learning needs as a result. Swissgrid is responding to this change with skills management tailored to the specific challenges of Strategy 2027.



Swissgrid of the future

Company

Swissgrid is safeguarding critical knowledge

Swissgrid carries out annual succession planning for management functions and key personnel, and assesses the potential of all employees. As part of this assessment, a systematic survey of all employees with critical and business-relevant knowledge was conducted for the first time in 2023. Among other things, the focus was on critical knowledge for system operation, on technically critical knowledge that is not available or only available to a limited extent to other people, and on knowledge that would take a considerable amount of time to pass on. Swissgrid will agree on individual measures with the holders of this critical knowledge to ensure the transfer of know-how. The aim is to keep this expertise available within the company, even in the absence of the

employees concerned, in order to avoid gaps in knowledge.



Market developments

Expansion of balance group monitoring

In order for Swissgrid to be able to guarantee grid stability at all times, it is dependent on receiving data that is as precise as possible from the balance groups, of which there are over 110, at an early stage. This is because the balance groups have a contractual obligation towards Swissgrid to ensure the best possible balance between the energy supplied and the energy taken from the grid. Swissgrid has therefore expanded its balance group monitoring: since mid-February 2023, balance groups with metering points have been continuously providing production and pumping forecasts in addition to consumption forecasts. This data enables Swissgrid to improve its monitoring of the balance between the energy supplied and the energy consumed. The main aim of extended monitoring is to jointly recognise a massive imbalance at an early stage and to notify the balance groups so that the volume of control energy to be used can be reduced.



Grid operation

Swiss context

A secure supply of electricity for the winter of 2023/2024

The initial conditions for the 2023/2024 winter supply were better than those of the previous winter: reservoir levels were on a par with previous years, gas storage facilities in Europe were almost full, and France had normal nuclear power plant availability. This is expected to remain the case in the future. Swissgrid once again did everything in its power to fulfil the new roles assigned to it by the Federal Council to increase Switzerland's winter supply. The company was responsible for the auction of the hydropower reserve, took structural measures to ensure that the voltage on the line between Bickigen and Chippis could have been temporarily increased if necessary, connected the reserve power plant in Birr (AG) to the transmission system, and took over the operational handling of the potential deployment of emergency power groups as an additional reserve. As in previous years, Swissgrid procured a proportion of the ancillary services required for spring 2024 by organising an early tender in autumn 2023. In addition, a yearly auction for cross-border capacities between France and Switzerland for 2024 was held for the first time in September 2023 to procure control power.



Grid operation

Market developments

Compensation systems for the extra-high-voltage grid

Swissgrid is responsible for voltage maintenance in the extra-high-voltage grid. Reactive power resources are contracted for this purpose, but they are still not made available in sufficient quantities at all times. This is due to Switzerland's own greater requirements for reactive power as a result of grid expansion and the increasing amount of underground cabling. For this reason, the Board of Directors resolved on 24 January 2023 that Swissgrid should build and operate its own reactive power compensation systems. In 2023, Swissgrid launched corresponding preliminary studies for specific locations and began a project to ensure the targeted use of systems. These systems and their use will promote safe, powerful and efficient grid operation.



Grid operation

Swiss context

Hydropower reserve for the winter of 2023/2024

Swissgrid is responsible for the procurement auctions and the operational management of the hydropower reserve for the winter. The hydropower reserve is used to reserve energy in reservoirs that can then be requested in the event of a shortage. In the reporting year, Swissgrid completed the procurement for the 2023/2024 hydropower reserve with auctions in three tranches on behalf of the Federal Electricity Commission. The costs for the total energy volume of 400 GWh amount to EUR 55.5 million (previous year: EUR 296 million).



Swiss context

Consolidation legislation – a legal basis for the power reserve

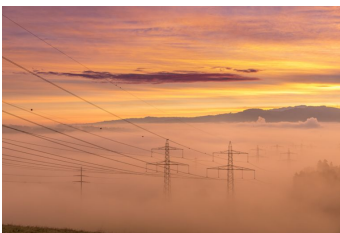
On 29 September 2023, the Federal Assembly adopted the «Federal Act on a Secure Electricity Supply from Renewable Energy Sources» (known as the «consolidation legislation») in the final vote. Swissgrid raised its concerns throughout the process. Among other things, the consolidation legislation establishes the legal basis for the power reserve and for the Winter Reserve Ordinance that has been in place since 1 October 2022. A referendum was called opposing the legislation, and the electorate will vote on the issue on 9 June 2024.



Swiss context

Acceleration of authorisation procedures

The grid plays a decisive role in the success of the energy transition. There is an urgent need for action to speed up grid-related authorisation procedures in order to guarantee security of supply in Switzerland in the long term. The Federal Council wants to simplify the procedures for large installations for the generation of electricity or heat from renewable energies. Among other things, it envisages the designation of suitable areas in the structure plan for wind, water and PV systems, a concentrated planning approval procedure for wind and PV systems, and regulatory deadlines for the competent cantonal authorities and the courts. To speed up grid projects, the sectoral planning procedure for transmission systems is to be shortened. In future, the Federal Council will simply determine the planning corridor, including the technology (overhead line/cabling). This is an important step towards speeding up procedures, but it is not enough on its own. Further measures are urgently needed with regard to the grid.



Grid operation

Swiss context

Simulations for security of supply

The Federal Electricity Commission has updated its analyses on security of supply in the medium and long term. These analyses allow conclusions to be drawn about the reserve capacity required to ensure a secure supply of electricity in 2025. The Commission tasked Swissgrid with conducting a study on short-term electricity adequacy for the year 2025. To this end, Swissgrid carried out a total of 1,575 simulations with various meteorological conditions and unforeseeable power plant outages, and calculated the probability and magnitude of any potential congestion. Based on the results, no supply problems are indicated in any of the simulations in the updated reference scenario for 2025.



Swiss context

European context

Progress towards an electricity agreement

The Federal Council adopted benchmarks for a negotiating mandate with the EU in June 2023, and submitted a draft for consultation in December 2023. Swissgrid welcomes this negotiating mandate, as the conclusion of an electricity agreement with the EU is of central importance for secure grid operation and security of supply in Switzerland.



Market developments

European context

Participation in European control energy platforms at risk

Due to the lack of an electricity agreement with the EU, Swissgrid's access to the European control energy platforms TERRE, MARI and PICASSO, and to International Grid Control Coordination (IGCC), is jeopardised or blocked. Swissgrid is committed to participating in these platforms in order to ensure the secure and efficient operation of the Swiss transmission grid in the long term. To this end, the company ensures technical compatibility with European processes and products, and put the Capacity Management Module into operation in October 2023. This will optimise the allocation of cross-border capacity for the international exchange of control energy via the European platforms.

Swissgrid is also taking legal action against decisions by the European Commission and the Agency for the Cooperation of Energy Regulators (ACER). These pending proceedings will allow Swissgrid to emphasise its legal opinion that it is entitled to participate in the control energy platforms.



Market developments

European context

Interim solutions for cross-border capacities

In order for electricity to be traded internationally, corresponding cross-border capacities must be available. The transmission system operators from the EU member states coordinate their free cross-border capacities within capacity calculation regions. Due to the lack of an electricity agreement with the EU, Switzerland is not part of the neighbouring «CORE» (northern borders) and «Italy North» (southern borders) capacity calculation regions. Thanks to contracts under private law with the transmission system operators, Swissgrid has nevertheless been included in the capacity calculation for the «Italy North» region as a «technical counterparty» since the end of 2021. However, the contract with «Italy North» must be renewed annually and requires the approval of the regulatory authorities in all the countries concerned.

Swissgrid is also endeavouring to conclude a contract with the transmission system operators in the «CORE» region. As flow-based market coupling has already been implemented in the «CORE» region, a new concept had to be developed to take Switzerland into account for capacity calculation in this region. Although this concept does not allow Switzerland to participate in market coupling, the new concept can ensure that the capacities allocated at the country's northern borders are utilised as fully as possible without Swiss grid elements being overloaded by market coupling in «CORE». The integration concept was submitted to the regulatory authorities of the «CORE» region in autumn

2023. The concept will be implemented following successful validation.



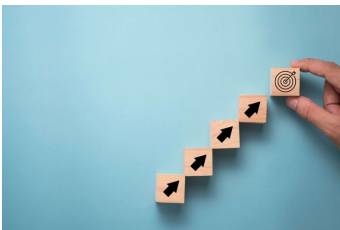
Grid operation

European context

Paradigm shift in grid security processes

Regional Operational Security Coordination (ROSC) is a requirement of the European System Operation Guideline (SO GL). Under the «Synchronous Area Framework Agreement» (SAFA), Swissgrid has contractually agreed to implement this requirement in the same way as the European transmission system operators. After completing the two-year concept phase, Swissgrid began implementing the new processes in September 2023. The introduction of ROSC has resulted in a paradigm shift in grid operations. Whereas in the past, the transmission system operators themselves identified measures to ensure operational security as part of their congestion management, such measures will now be determined centrally. The aim is to prevent contradictory grid relief measures being taken in different countries and to optimise costs.

Due to the lack of an electricity agreement, Switzerland is increasingly excluded from processes on the European internal electricity market. For this reason, Swissgrid's participation in market-relevant processes such as capacity calculation or the European control energy platforms is problematic and disputed in court. Thanks to contracts under private law with neighbouring transmission system operators, Swissgrid is involved in processes to ensure operational security, which mitigates system risks to a certain extent in the short term.



Swissgrid of the future

Company

New enterprise resource planning system for more efficient processes

On 3 January 2023, a new enterprise resource planning system that provides intelligent, integrated end-to-end support for Swissgrid's business processes went live on schedule. This made it possible to fully digitalise various processes, making Swissgrid's business activities more efficient and effective overall. The new solution also offers the potential to integrate additional processes and to achieve optimisations, enabling Swissgrid to reach an important milestone on the path to a digital, intelligent workplace.



Company

Sustainability report creates transparency

In its Strategy 2027, Swissgrid has decided to establish sustainability as a part of its strategy and to strengthen the principle of sustainability throughout the company. As an important part of this, the company published its sustainability commitment for the 2022 financial year in the form of a report for the first time on 8 August 2023. Swissgrid thereby creates comprehensive transparency about its activities and key figures in the area of sustainability, with reference to the standards of the Global Reporting Initiative (GRI). The focus is on the four fields of action Purpose, People, Partnership and Planet. The report is based on the United Nations Sustainable Development Goals (SDGs). Swissgrid is now presenting an integrated Annual and Sustainability Report for the 2023 financial year for the first time. This is also based on the requirements of the Swiss Code of Obligations with regard to non-financial reporting.

Swissgrid organised «The Climate Fresk» workshops to firmly establish sustainability in the minds of employees. The aim of these workshops was to raise awareness of climate change and to provide information on the relevant scientific principles.



Company

Change on the Executive Board

On 1 July 2023, the Board of Directors appointed Nell Reimann (56) as Head of Business Unit Market and a member of the Executive Board. She succeeds Maurice Dierick, who decided to leave Swissgrid with effect from 30 June 2023. Nell Reimann has been working for Swissgrid since September 2016. As Head of System Development, she was initially responsible for the strategic and operational management of the department. In this role, she harmonised and optimised interfaces and processes at the control centres in Aarau and Prilly. Since 2019, Nell Reimann has been Head of System Operations for Aarau and Prilly.



Company

Dialogue with the population, industry stakeholders and politicians

Swissgrid provides transparent and continuous information about its activities and construction plans. In 2023, Swissgrid once again held information events on planned construction projects and strengthened dialogue with the public by attending various trade fairs. In April 2023, the Swiss Museum of Transport in Lucerne opened its new permanent exhibition «Experience Energy!» with the participation of Swissgrid. Swissgrid also continued exchanging information with industry players and politicians. Events included an industry webinar and a grid utilisation

conference. In addition, another session event was organised with partners from the electricity sector in Berne in March 2023.



Company

Swissgrid issued another corporate bond

On 5 June 2023, Swissgrid successfully issued another bond on the capital market with a volume of CHF 200 million, a coupon of 1.90% and a term of three years. The proceeds of this bond will be used to repay current financial liabilities and to finance ongoing investments, procurement costs and the costs of the power reserve for the winter.

Annual Report

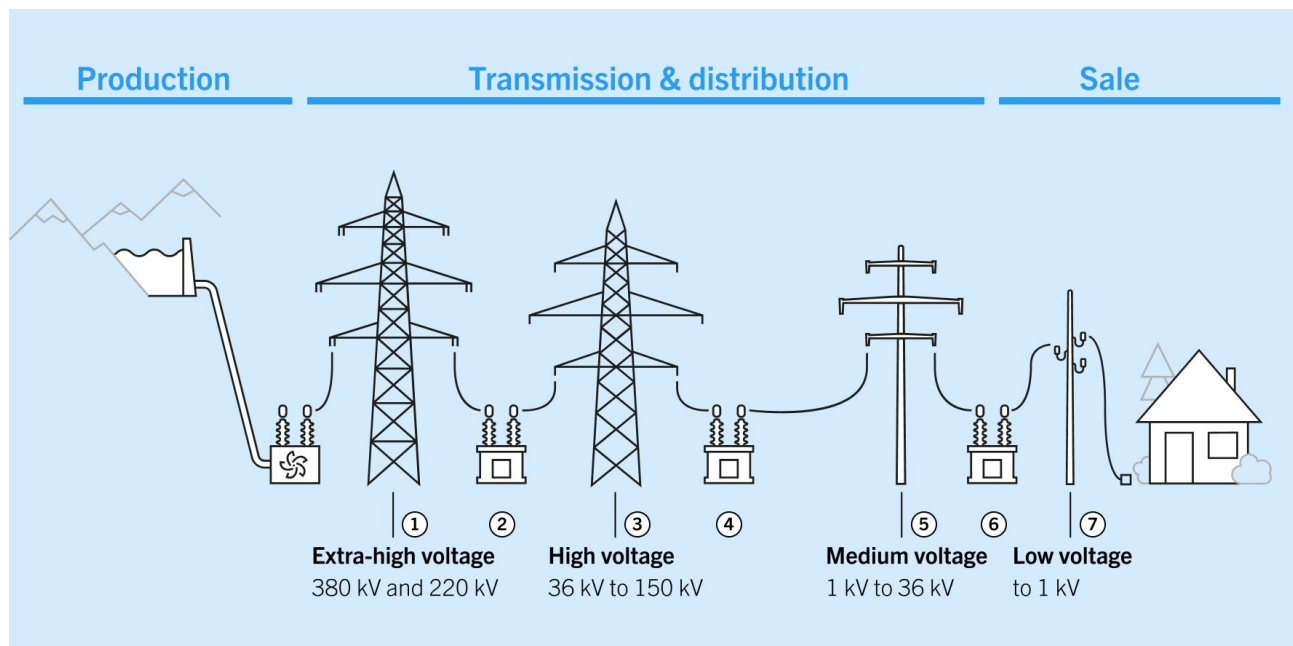
Company

GRI 2-6

Swissgrid is the national grid company and owner of the Swiss extra-high-voltage grid. Its mandate is governed by the Electricity Supply Act (StromVG, SR 734.7) and the Electricity Supply Ordinance (StromVV, SR 734.71). The Federal Electricity Commission (ElCom) monitors compliance with these regulations. Swissgrid is responsible for the operation, maintenance, renewal and expansion of the Swiss transmission grid. In doing so, the company makes an important contribution to security of supply in Switzerland.

Value chain of the Swiss electricity industry

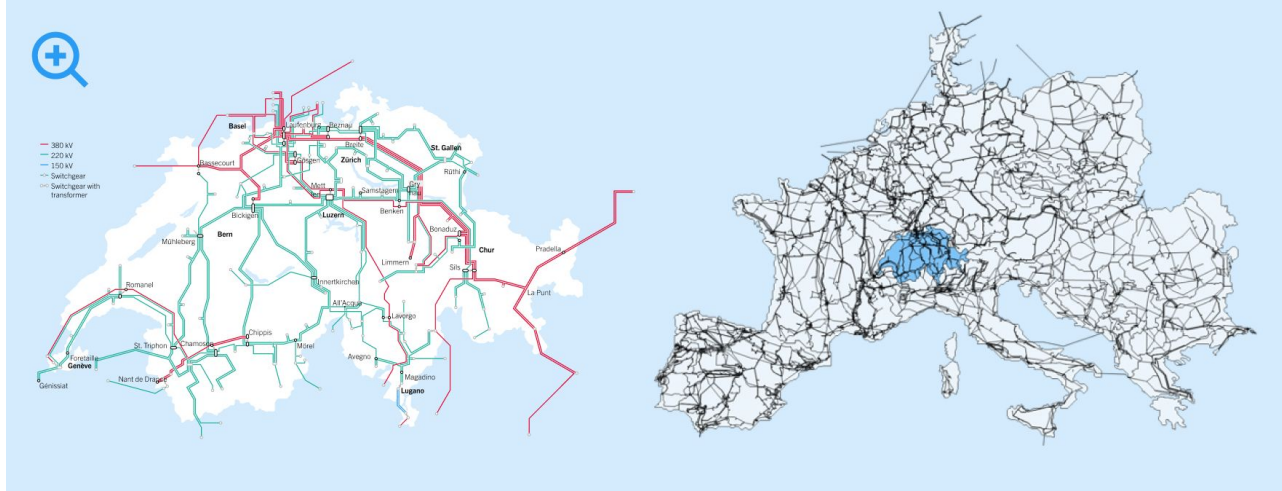
The Swiss transmission grid is a relevant part of the supply chain for the Swiss electricity system. This is made up of four areas: electricity generation, transmission, distribution and sale. Electrical energy is transmitted and distributed via a total of seven grid levels. These are the extra-high, high, medium (1, 3 and 5) and low-voltage levels (7), and three connecting transformer levels (2, 4 and 6). Immediately after being generated in large power plants, electrical energy is fed into grid level 1, the transmission system. The following grid levels take care of the national, regional and local distribution of electricity as far as the power outlet, and transform it as required.



Swissgrid is responsible for grid level 1 and therefore for the secure transmission of large volumes of electrical energy over long distances. The Swiss transmission grid consists of 380 and 220 kilovolt lines extending over a length of 6,700 kilometres and supported by more than 12,000 electricity pylons. For the extra-high-voltage grid to function smoothly, it needs an elaborate infrastructure consisting of perfectly harmonised components. These include the two grid control rooms in Aarau and Prilly, 125 substations with a total of 147 switchgears and 25 transformers, as well as protection and station

control technology.

The transmission system in 2023



In addition to the domestic transmission of electricity, the Swiss transmission grid also enables the import, export and transit of energy. With 41 cross-border lines, it is closely integrated into the European interconnected grid. The Swiss transmission grid therefore plays an important role in the cross-border transport of electrical energy throughout Europe. Today, the European interconnected grid guarantees a secure supply of electricity for more than 530 million consumers in over 30 countries.

Key figures: the transmission system in 2023



The missions of the national grid company

In accordance with the Electricity Supply Act, Swissgrid ensures the non-discriminatory, reliable and

efficient operation of the transmission system at all times as an essential basis for the secure supply of electricity in Switzerland. At the grid control rooms in Aarau and Prilly, the company ensures that the system frequency of 50 hertz is constantly maintained and that electrical energy is transported safely. Swissgrid also coordinates the schedules of Swiss power plant operators and electricity traders, minimises congestion and prevents overloads in the grid.

In addition, the company is responsible for the planning, replacement, expansion, maintenance and repair of the entire extra-high-voltage grid infrastructure. Swissgrid invests not only in the operation and modernisation of the grid to ensure system security, but also in market development. It helps to develop trading platforms for control energy and ensures cross-border capacities for energy exchange. Due to the close integration of the Swiss transmission grid with the European interconnected grid, Swissgrid has an important role to play in Europe.

As Coordination Centre South, it ensures smooth system management with European transmission system operators by monitoring the frequency of the European extra-high-voltage grid in association with the German transmission system operator Amprión (Coordination Centre North). Swissgrid is involved in the coordination of operational security processes and the European exchange of electricity. It also helps plan pan-European grid expansion. Swissgrid works with foreign transmission system operators and represents Switzerland's interests in the corresponding bodies.

GRI 2-1

Establishment as the Swiss transmission system owner

Swissgrid was founded in 2005 in view of the gradual liberalisation of the Swiss electricity market with the aim of harmonising and centrally operating Switzerland's transmission system. Prior to that, different electricity grid companies were simultaneously responsible for power transmission in Switzerland. Since 2008, the Electricity Supply Act (StromVG) has stipulated that the transmission system must be owned by the national grid company. As the national grid company, Swissgrid has been in charge of the operation and safety of the extra-high-voltage grid since 2009.

Swissgrid took over ownership of the grid in 2013 and has since been responsible for its maintenance and expansion. Today, Swissgrid employs over 800 people at its headquarters in Aarau, at its site in Prilly, and at its bases in Castione, Landquart, Laufenburg, Ostermundigen and Uznach.

Business activities in a strictly regulated environment

Swissgrid operates in a strictly regulated environment (see chapter «Regulatory business model»). Providing consumers with a secure supply of electricity is in the public interest and requires a reliable and efficient infrastructure. On account of its economic characteristics, the grid also represents a natural monopoly, which is recognised as a legal monopoly under StromVG and StromVV. Consequently, there is an undisputed need for regulation to ensure a grid infrastructure and grid management that are as efficient as possible. This task is performed by the Federal Electricity Commission (ElCom).

In accordance with the law, Swissgrid is established as a public limited company under private law with its registered office in Switzerland. The grid company must also ensure that the majority of its capital and the associated voting rights belong directly or indirectly to the cantons and municipalities (see chapter «Corporate structure and shareholders»).

Annual Report

Mission

As the national grid company, Swissgrid ensures the secure transport of electricity via both the national grid and the transmission grid connected to the European electricity system. This electricity forms the basis for the high quality of life and prosperity in Switzerland and Europe. Thanks to the central role it plays in the energy system, Swissgrid is actively shaping its sustainable transformation.

GRI 203-1, 203-2

Relevant contribution to the transformation of the energy system

The energy industry is facing major changes: decisions at the global, European and Swiss levels are making provision for a change in energy production, away from CO₂-intensive towards CO₂-neutral energy sources. With its long-term climate strategy, Switzerland has set itself the goal of achieving net-zero greenhouse gas emissions by 2050. At the same time, following the adoption of the Energy Strategy 2050 by the Swiss electorate, the decision has been made to gradually phase out nuclear energy and promote renewable energies. The power plant park in Switzerland will therefore undergo significant changes. In order to achieve the climate targets, electrification of mobility, heating and industry is also necessary, leading to an increase in the consumption of electrical energy.

This comprehensive transformation of the energy system is already a mammoth task in itself. In addition, Switzerland's security of supply – particularly in the winter months – must be guaranteed in the long term. This challenge, which has long been discussed in the industry, has moved to the top of the political agenda in recent years, resulting in changes to the legal framework.

A challenge and an opportunity

Transmission system operators, as the link between production and consumption, are significantly affected by these changes. The rise in decentralised and renewable electricity generation, such as wind and photovoltaics, and the elimination of power plants with guaranteed power, are increasing the volatility and complexity of the energy system, and hence the demands placed on grid operators. However, these changes are both a challenge and an opportunity, giving transmission system operators the chance to make an important contribution to the transformation of the energy system.

It is crucial for the grid infrastructure to keep pace with the ambitions of the energy transition. Swissgrid aims to use, manage, modernise and expand its transmission system more efficiently so that the secure transport of electrical energy can continue to be guaranteed in the future. Digitalisation is one of the aspects the company is relying on in order to increase the efficiency of grid operations and of the planning, expansion and maintenance of the grid infrastructure. Swissgrid is tackling the higher volatility of renewable electricity generation by improving its

forecasting capabilities, for example. On the market side, new market platforms and products are being developed so that the growing potential of decentralised flexibility, such as batteries and heat pumping technology, can be used in a way that benefits the system.

Swissgrid is committed to a climate-neutral society by 2050, a successful energy transition and the continuous development of the grid – as the backbone of a more sustainable energy system. Swissgrid has reaffirmed its commitment with its Strategy 2027 (see chapter «2027 Strategy») and the decision to anchor sustainability even more firmly within the company. The company is also part of the initiative to support the energy system to reach carbon neutrality.

Swissgrid sets various priorities in order to fulfil its legal mandate and to assume its important contribution to ensuring a secure supply of electricity. These priorities are also part of the Strategy 2027 and correspond to sustainability topics that have been integrated into Swissgrid's materiality matrix.

GRI 203-1, 203-2

Security of supply

As a transmission system operator, Swissgrid is responsible for a critical infrastructure. Secure and efficient grids are of vital importance in order to guarantee the supply of electricity. In Switzerland, other sectors such as transport, finance, health and IT also count as critical infrastructures. However, they are all dependent on the energy sector, and therefore rely on a secure supply of electricity, which the transmission system plays an important role in providing. The Federal Office for Civil Protection considers an electricity shortage to be the greatest financial risk for Switzerland. A major, nationwide power failure also ranks in the top ten¹ in the expected damage category.

The Swiss transmission grid is closely interlinked with the European interconnected grid and, due to its central location in Europe, plays a key role in the exchange of electrical energy in Europe. An outage or disruption to the grid can therefore have far-reaching consequences that extend beyond Switzerland's borders.

¹Federal Office for Civil Protection, report on the national risk analysis (disasters and emergencies in Switzerland 2020)

Grid-related security of supply – the sum of various components

In order to ensure a high level of grid-related security of supply and to protect the grid from an outage, Swissgrid takes action at various points:

Ensuring grid operations – around the clock

In Swissgrid's capacity as Coordination Centre South, its grid control rooms are responsible for ensuring the permanent balance between electricity generation and consumption to maintain a constant system frequency of 50 hertz – not only for Switzerland, but also for Europe. The grid control rooms also monitor the capacity utilisation of the transmission system and intervene in the event of congestion, impending line overloads or failures of grid elements. When operating their grids, the transmission system operators follow the n-1 principle, which is an essential rule for ensuring secure transmission system operation. This principle states that if any one grid element fails, no other element may be overloaded.

Long-term planning is necessary for secure grid operation: this takes into account aspects such as the decommissioning of lines and power plants, as well as the schedules of power plant operators and electricity traders, which include all electricity exchange transactions in Switzerland and abroad. Swissgrid continuously coordinates its planning and real-time operations with European transmission system operators.

Helping to shape and develop markets – in Switzerland and Europe

Another prerequisite for a high level of grid-related security of supply is the availability of control power to compensate for short-term deviations between production and consumption (balancing measures) and to manage grid congestion. That is why Swissgrid is continuously optimising the Swiss market for control power and cooperating with European transmission system operators.

The transmission system operators are also tasked with providing sufficient capacity on cross-border lines for international electricity trading. In order to avoid grid congestion and to ensure non-discriminatory access, Swissgrid allocates capacity at the Swiss border by means of auctions. These processes are carried out in close coordination with the neighbouring transmission system operators.

Cooperation with Europe – in all areas

Swissgrid and European transmission system operators cooperate closely in areas such as grid operations, control power markets and congestion management. To ensure that all grid operators adhere to the same rules in the interconnected grid, the EU regulatory requirements for system operation are implemented. Cooperation across Europe is also crucial for the successful integration of increasingly decentralised energy sources into the overall system.

Due to the lack of an electricity agreement between Switzerland and the EU, it is becoming increasingly difficult for Swissgrid to help shape these pan-European developments. This has a negative impact on grid security, and hence on Switzerland's security of supply. The exclusion of Swissgrid from European platforms and coordination processes increases the risk of unplanned load flows in the Swiss transmission grid. Swissgrid is therefore taking various measures to counteract Switzerland's growing isolation (see chapter «Stakeholder engagement»).

Ensuring safety – at all levels

Important prerequisites for grid-related security of supply include a resilient grid infrastructure and the availability of IT and communication systems. To ensure the safe and reliable operation of the Swiss transmission grid, Swissgrid pursues an integral security policy. This defines the objectives and framework for action for implementing precautions in a consistent and coordinated way according to standardised rules.

The purpose of integral security management is, on the one hand, to protect people and the environment from negative influences caused by Swissgrid's activities and, on the other hand, to protect Swissgrid's employees, installations, systems and information from adverse effects.

Swissgrid's integral safety policy

Swissgrid's integral approach to safety management comprises seven security domains: operational security, physical security, information security, integral risk management, crisis management and business continuity management, as well as health protection, occupational safety and environmental protection. The integral safety policy sets out Swissgrid's safety objectives and regulates the essential aspects required for the effective implementation of company-wide integral safety management. These include the principles, the overarching framework conditions and domain-specific requirements, and security organisation.

Operational security

The aim of operational security is to ensure that Swissgrid provides a secure service in every grid state. It is based on the processes and elements of safety risk management, such as the reporting system, event investigation, safety risk analysis, safety culture and clearly defined roles and responsibilities.

In particular, operational security aims to ensure that work can be carried out reliably in complex grid and system operations, and that the corresponding processes and instructions function properly. The following specific methods and processes are used, among others:

- Independent, continuous observation of operations with the aim of identifying instructions that are inappropriate or prone to errors, or procedures that deviate from the instructions, and improving them by means of incident analyses.
- The principles of «human factors» for designing a robust working environment that is tailored to people's characteristics.

A competence management system that consistently ensures and documents basic training, the retention of knowledge and skills, the further training of employees (especially in grid and system operations), and the building up of experience.

Physical security

The aim of this security domain is to ensure the physical security of employees, of third parties and of the Swissgrid infrastructure.

Swissgrid has developed its own company-wide standards based on best practice in order to meet the requirements of a critical infrastructure. Among other things, they take into account the ISO/IEC 27002 standard, the industry recommendation of the Association of Swiss Electricity Companies (VSE) and the regulations of the Federal Inspectorate for Heavy Current Installations (ESTI).

Information security

The aim of the «information security» domain is to guarantee the confidentiality, availability and integrity of data and information in physical form or based on Information and Communication Technology (ICT) systems for business and operating technology.

A risk-based information security management system built according to international standards, such as those of the ISO/IEC 27000 family, defines the regulations and measures to be applied. This management system supports the entire implementation process from implementation through to review and further development. The basic measures to be applied and measures specific to the energy sector are derived and implemented from the same family of standards.

Crisis management and business continuity management

Swissgrid's crisis management and business continuity management (BCM) have the common goal of ensuring flexible incident management that is adapted to the situation so that the continuity of critical processes required for Swissgrid's key responsibility can be guaranteed in the event of an incident. Crisis management and BCM serve to continue Swissgrid's mission in accordance with the defined framework conditions, subject to certain restrictions, in the event of deviations from the normal situation. They are based on Swissgrid's mandate in accordance with Art. 20 StromVG and Art. 5 StromVV, ENTSO-E requirements in accordance with the Synchronous Area Framework Agreement, Transmission Code and VSE industry document, and the requirements of the Federal Office for Civil Protection.

The existence and proper functioning of crisis management and BCM correspond to the necessary level of basic protection. Swissgrid's business continuity management system, based on the ISO 223xx series, is being continuously developed for this purpose within the framework of a roadmap approved by the Executive Board, including annual targets. Among other things, it describes the creation of BCM specifications, the regular verification of BCM scenarios, and the development, testing and practising of risk-based business continuity plans. Business impact analysis is used to identify the critical processes required for Swissgrid's key responsibility and the requirements for restoring process performance, which are to be taken into account within the BCM framework. At the same time, this determines the corresponding level of protection. This analysis is repeated as necessary and reviewed on a regular basis. In addition, Swissgrid employees are trained to apply the correct conduct in the event of an incident as part of crisis exercises, and the functionality of existing systems and processes is checked. The implemented BCM processes are tested on an ongoing basis.

Every year, additional exercises lasting several days are conducted at the simulation centres in Prilly and Aarau. The aim of these exercises is to simulate a major disturbance or blackout and to practise grid restoration. Swissgrid, all distribution system and power plant operators connected to the transmission system, and the operators of restoration cells participate in these exercises. Swissgrid envisages that, in the event of a major event, personnel will be gathered at decentralised sites in Switzerland in order to carry out the necessary work on site. This procedure

is repeated and practised with the involvement of external partners.

The status of BCM implementation and the company's business continuity capability are regularly reported to the Executive Board and the Board of Directors.

The topics of occupational health and safety and environmental protection are explored in greater detail in the «Occupational health and safety» section.

Continuing to ensure grid-related security of supply in the future

The transformation of the energy system is bringing new challenges for ensuring grid-related security of supply. Swissgrid addresses these challenges in its Strategy 2027 (see chapter «2027 Strategy»). The «Security of supply» priority focuses on measures to ensure grid-related security of supply in the long term, regardless of the degree of integration into EU processes, while at the same time supporting the federal government's «Energy Strategy 2050». To increase the controllability of the grid, Swissgrid is taking structural measures, changing operational processes and using digital solutions in system operation. These approaches are also key to promoting the integration of renewable energy sources into the energy system.

	2023	2022
Number of supply failures in the meshed grid	1	0
Average duration of interruption	40 minutes	0
Energy not supplied in the meshed grid	113 MWh	0

in GWh	2023	2022
Transported energy	74,134	74,414
Imported energy	27,017	32,695
Exported energy	32,888	28,762
Transit energy	21,591	23,134
Active power losses absolute	919	987
Positive control energy	1,033	1,118
Negative control energy	694	754

Active power losses of transported energy	1.24%	1.33%
Ratio of «energy not supplied» to transported energy	0.0015	0

GRI 203-1, 203-2

Grid transfer capacity

Swissgrid's aim is to provide a grid infrastructure that offers high availability and capacities, and that meets the requirements of the future energy system. This requires long-term planning, modernisation and optimisation of the grid, as well as ongoing inspection, maintenance and servicing. To support the

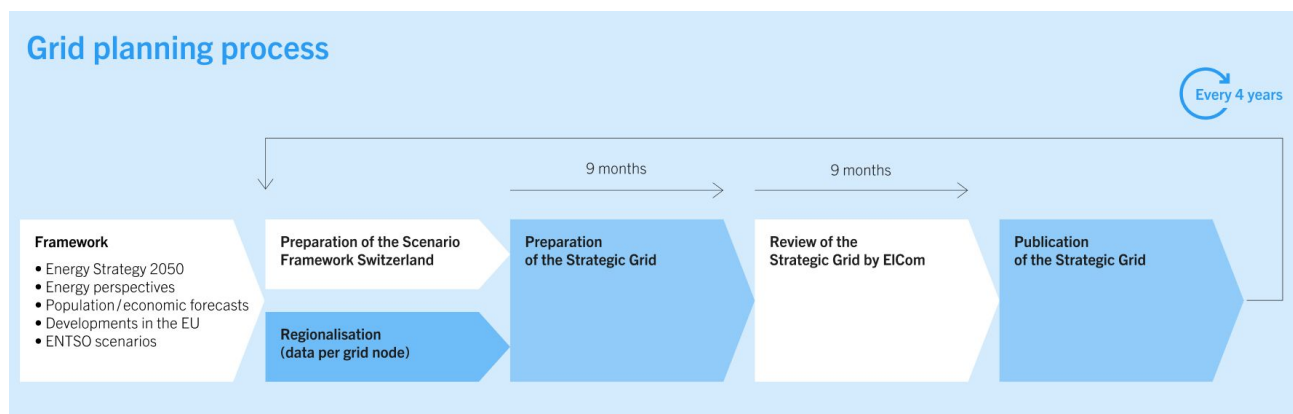
transformation of the energy system, Swissgrid invests over CHF 200 million every year.

Planning the grid – the Strategic Grid

The requirements placed on the grid have changed significantly in recent years. This trend will intensify in the coming decades as part of the energy transition. The Swiss Federal Office of Energy has set out these changes in the scenario framework for Switzerland, which contains national target values for each generation technology and consumer group for the years 2030 and 2040.

Swissgrid is developing the Strategic Grid 2040 on the basis of this scenario framework. In addition, Swissgrid receives information on the regional development of production and consumption within Switzerland from SBB and from the distribution system and power plant operators that are directly connected to the transmission system. Swissgrid uses this data to determine grid development requirements.

The process for the Strategic Grid 2040 is already well advanced. In 2024, Swissgrid will finalise the planning and submit it to the Federal Electricity Commission (ElCom) for review. Swissgrid will then publish the new strategic grid. For the first time, this planning is based on the legal basis established in the «Electricity Network Strategy». It will be repeated every four years in the future.



Investment in the grid infrastructure – modernisation in line with demand

Swissgrid continuously invests in its grid infrastructure to ensure a secure, efficient grid in line with demand. The current modernisation projects are set out in the Strategic Grid 2025 and represent an investment volume of around CHF 2.5 billion. The grid projects included in the Strategic Grid 2025 are designed to eliminate existing congestion, ensure the transport of energy from large power plants in the Alps to urban centres, and strengthen the connection to the European grid.

Swissgrid has already been able to complete some of the projects from the «Strategic Grid 2025», while others are in the project planning or implementation phase.

Maintenance of a grid that is permanently in use

The Swiss transmission grid is one of the most reliable power grids in the world. To ensure that the grid functions perfectly at all times, it not only needs to be converted and expanded, but must also be continuously inspected, maintained and repaired. Maintenance includes regular cleaning and adjustment of technical systems. If installations are damaged after a storm or avalanche, they must be repaired quickly. Swissgrid also carries out planned repair work, such as the replacement of conductors and insulators, protection against corrosion, the revision of circuit-breakers and deforestation. Two-

thirds of the Swiss transmission grid, which is over 6,700 kilometres long overall, dates from before 1980. This work is therefore of great importance.

The right grid infrastructure for the transformation of the energy system

The modernisation of the transmission system lays the foundations for a sustainable energy future. At present, however, the expansion of the grid cannot keep pace with the growth of renewable energy installations. Objections and legal proceedings lead to significant delays in the realisation of grid projects. Swissgrid is committed to ensuring that approval processes are made more efficient and that grid expansion can be driven forward. In the «Grid Transfer Capacity» priority of its Strategy 2027 (see chapter «2027 Strategy»), Swissgrid also defines measures to increase the capacity of the grid in line with demand and to implement and operate the grid even more efficiently in the future. Digital solutions play a key role in addition to the Strategic Grid 2040. A completely digitalised grid image provides the basis for establishing data-driven system management.

GRI 203-1, 203-2

Innovation and digitalisation

Swissgrid is driving forward digitalisation within the company in order to tackle the challenges associated with the transformation of the energy system. Digitalisation can also be seen as a catalyst for the energy transition because it leads to increased efficiency in all areas of responsibility and opens up new opportunities.

More efficiency in grid planning

Use of 3D visualisations

Swissgrid has developed a 3D Decision Support System in collaboration with ETH Zurich. This system analyses and maps all the factors that are relevant to the line route, such as environmental protection, regional planning, economic efficiency and technology. The resulting 3D models assist decision-makers, lead to greater transparency, and simplify communication with residents and stakeholders.

Greater efficiency in grid management and expansion

A digital twin of the grid

A completely digitalised grid image – a digital twin of the physical grid – provides the basis for establishing data-driven plant management. This allows the status of plants to be monitored more precisely over the entire life cycle and enables the grid to be operated in a more efficient manner.

Use of drones and artificial intelligence

In 2022, Swissgrid carried out a pilot project to test the use of drones. They flew over around 1,000 pylons to assess their condition and identify any damage. These drones can deliver high-resolution images thanks to modern sensors and cameras. Using artificial intelligence algorithms, the images were then evaluated according to the damage catalogue defined by Swissgrid. Following the successful completion of the pilot project, Swissgrid commissioned service providers to fly over all 12,000 pylons in the transmission system by 2025. Swissgrid is also considering the use of drones for other scopes of application.

Building Information Modelling

In order to expand the transmission system more efficiently, Swissgrid uses digital working methods such as Building Information Modelling (BIM). This allows interdisciplinary collaboration over the life cycle phase of systems, including model-based planning and the realisation of grid infrastructure. The first pilot projects are currently underway, such as the replacement construction at the Botterens substation.

Internet-of-Things sensors on pylons

In 2021, Swissgrid launched the «Pylonian» innovation project, which involved placing Internet-of-Things sensors on pylons to measure variables such as pylon vibrations, pylon inclination, temperature and solar radiation. Swissgrid's aim is to monitor the condition of the pylons over their entire life cycle in order to carry out maintenance work in a more targeted manner.

More efficiency in grid operations

Forecast of production from photovoltaics

Swissgrid's «PV Forecasts» project aims to significantly improve Swissgrid's internal data basis for feeding photovoltaic energy into the grid. This should make forecasts with a high regional and temporal resolution possible in the future. This aids system operation with regard to grid monitoring and is intended to assist the industry with the secure integration of large volumes of photovoltaic energy.

Outage planning

The aim of Swissgrid's «Compose» research and development project is to automate and optimise the outage planning of grid elements with the help of mathematical optimisation and algorithms. This facilitates the highly complex planning of grid operations.

Closer cooperation between transmission and distribution system operators

The expansion of photovoltaics, heat pumping technology and electric vehicles requires closer coordination between grid operators in order to ensure secure grid operation. In association with Equigy, Swissgrid and ewz carried out a pilot project to distribute the use of decentralised energy resources in a coordinated manner in order to provide ancillary services. Phase B, which was launched in 2023, aims to win over additional industry partners for the project.

Swissgrid is also seeking closer cooperation with distribution system operators in the future with the «OPTESO» project, which aims to develop a decentralised mechanism for carrying out joint grid security calculations.

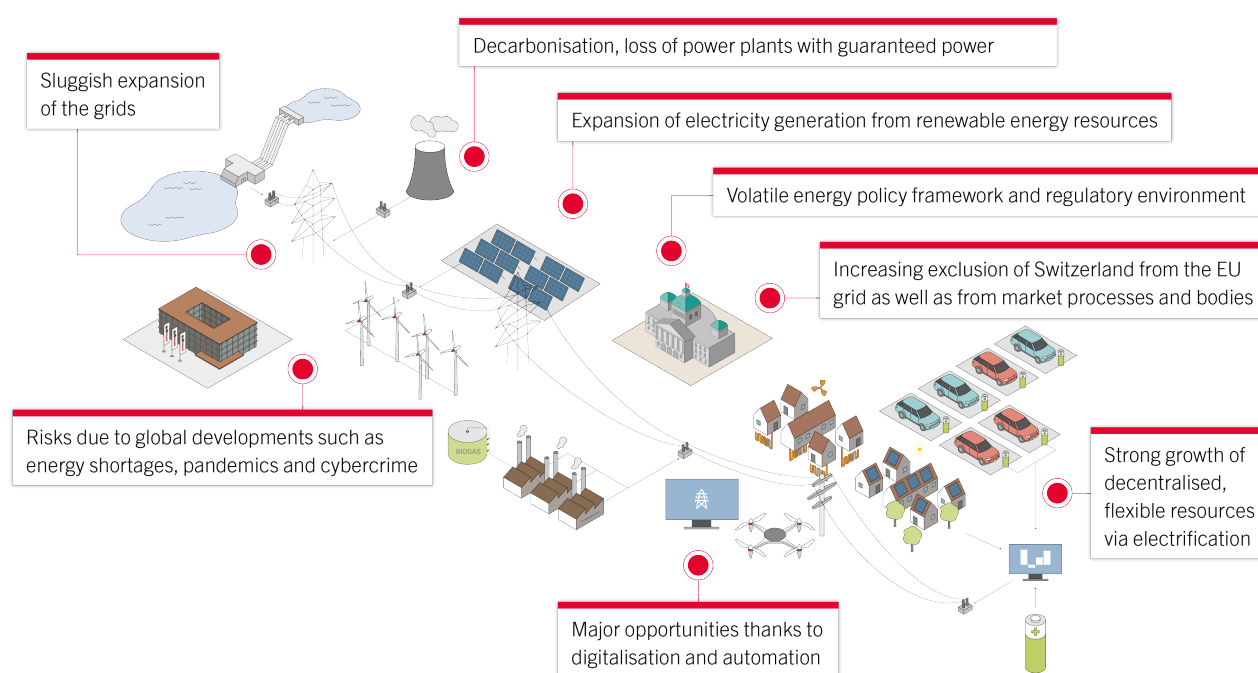
Innovation and digitalisation as a new priority in Strategy 2027

The new «Innovation and Digitalisation» priority was included in Strategy 2027 (see chapter «2027 Strategy») in order to develop Swissgrid into an innovative, highly digitalised company. A comprehensive package of measures creates the prerequisites at the data, technological and personnel levels so that the desired digital transformation can be successfully implemented in the company. The focus is also on developing a culture of innovation. To this end, Swissgrid organised events such as Innovation Days, during which employees were able to explore exciting topics for the future and receive incentives, and where ideas and interaction were promoted (see chapter «Attracting, retaining and developing skilled workers»).

Annual Report

2027 Strategy

In the past reporting year, Swissgrid launched its Strategy 2027 and entered a new five-year strategy period. The company defined five closely linked priorities, four of which were carried over from the previous strategy period and adapted to the current framework conditions. A new focus on «Innovation and Digitalisation» was also added.



After a long period of stability, the electricity industry is now in a state of flux. Fundamental change was triggered by the EU's decision to integrate the European power markets and to decarbonise the energy industry. 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».

These developments affect grid operators in several ways: the expansion of renewable energy production leads to significant changes in production patterns and volatile electricity flows. This poses major challenges for power system control, which are accentuated for Swissgrid 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 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 or cybercrime make it clear that operators of critical infrastructures must have an exceptionally high level of protection and readiness.

Digitalisation offers a response to the increasing complexity of the grid operators' environment. For example, the desired digital transformation will make it possible to integrate many of the new, flexible resources profitably into system operation. End-to-end digital processing of the value chain will also open up opportunities for efficiency gains within the company.

Five priorities for Strategy 2027

«Security of Supply»

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 EU processes, while at the same time supporting the Confederation's energy strategy. Networking and cooperation with Europe are crucial for ensuring 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.

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.

Swissgrid wants to harness the potential of all the decentralised resources in the energy system 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»

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. 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.

Maintenance is being automated in many areas, for example by using drones. 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.

«Innovation and Digitalisation»

Digitalisation is the common denominator of the first two priorities. With its new «Innovation and Digitalisation» priority, Swissgrid is laying the foundations 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 working 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. In addition, 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»

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. As part of the «Operational Excellence» priority, 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.

Swissgrid is also becoming even more sustainable. It 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.

«Safety & Security»

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. To do so, Swissgrid is continuously adapting to meet the changing demands placed on companies' security arrangements, emergency response measures, crisis management and business continuity management.

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 key responsibility 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.