

ABB Switzerland in brief Energy for the future

Power and productivity
for a better world™





Energy for our customers Sustainable and efficient

Global energy consumption continues to grow and if left unabated will lead to an ever-greater risk of irreversibly changing our climate. To take advantage of more sustainable energy sources, the energy landscape is in a state of profound change to allow: the integration of increasing amounts of renewable energy sources to be integrated into the grid, to allow infrastructure to run more intelligently and efficiently, and to ensure the supply of energy is available at all times.

As one of the world's leading technology company, ABB is well-equipped to help its customers meet these challenges. In the field of power engineering, ABB supplies key components and solutions for all types of power plants, integration of all central and decentral energy sources, comprehensive grid monitoring and energy management systems and intelligent building technology.

In industry, ABB helps make customer systems more energy-efficient by providing the latest automation technology to improve productivity and competitiveness.

ABB is one of the few companies in the world with the products, systems and skills to successfully weld expertise in both power and automation to secure sustainable efficient energy use for its customers.

A handwritten signature in blue ink, reading "Jasmin Staiblin". The signature is stylized and fluid.

Jasmin Staiblin
Chief Executive Officer ABB Switzerland



Research and development Groundbreaking technologies

Research and development are key factors for the success of any technology company. At ABB, around 7,500 employees worldwide are tasked with anticipating trends in energy and automation technologies and developing innovative solutions. In seven corporate research centers, ABB researchers work on the most advanced new and improved technologies, which are then implemented by the development departments of the business units to create products and systems.

Energy efficiency at the center

At the Swiss Corporate Research Center in Baden-Dättwil, 200 staff members from about 30 different countries conduct research in the field of electrotechnology, power electronics, automation of industrial processes and energy technologies. Energy efficiency plays a key role in the process and thanks to advances in power electronics technology the losses in high-voltage direct current transmission technology, converters, motor drives and transformers, have been greatly reduced.

Power electronics and renewable energy

Another key focus area is renewable energy and its integration into the grid, which also relies on power electronics. Researchers are studying the interaction of various components, such as energy storage systems within smart grids, while seeking to increase the electrical transmission capacity and make existing products and systems even more reliable and compact.

But new ideas are being promoted even outside these established research and development structures. At ABB, innovation is part of its day-to-day business and its corporate culture.

Successful people

Working to shape the future

ABB employees are shaping the world of tomorrow. ABB engineers are setting the course for new technologies and actively helping protect the environment. Creative researchers and developers are bringing pioneering, sustainable, cutting-edge technologies to market. In manufacturing, sales and project management, dedicated staff members offer customized solutions. And service experts competently and responsibly optimize the productivity of existing systems and reduce energy consumption.

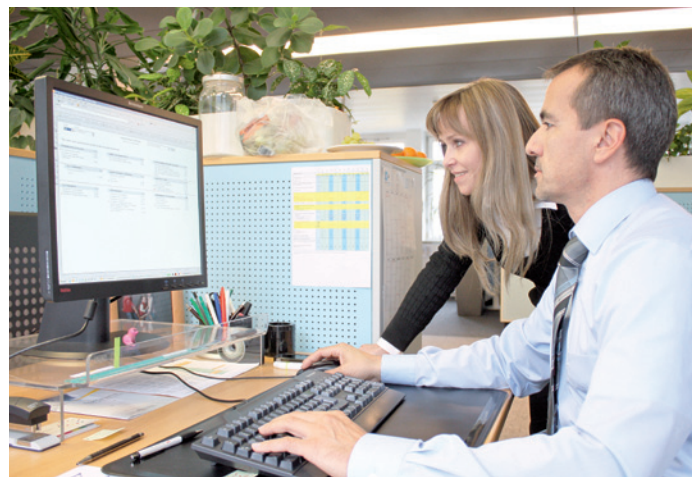
Recognizing and promoting talent

ABB offers its employees a variety of opportunities to shape their own careers. In addition to technical expertise, networked thinking, teamwork and interpersonal skills play an important role. Another requirement in a multicultural environment is openness toward other cultures.

Interesting projects at home and abroad offer challenging and diverse opportunities that require self-reliance and personal responsibility. ABB values continuing education and a holistic approach to identifying and promoting talent early. From identification to positioning, ABB systematically ensures that employees have the ability to develop their potential. ABB thus offers a wide variety of development and career opportunities – from specialization in the department to management positions in Switzerland and abroad.

A popular employer

ABB Switzerland is a popular employer, as confirmed by surveys of science students and experienced engineers. In addition to exciting jobs and an international atmosphere with employees from 80 countries, ABB offers attractive benefits, including flexible working hours and twelve child care centers at various locations.



Fiscal year 2011

Investing in the future

ABB is a global leader in energy and automation technology with around 135,000 employees in over 100 countries. As part of an international group, ABB Switzerland benefits from broad technology expertise, global market knowledge and customer relationships in a global network. ABB Switzerland is also globally responsible for numerous products and systems.

Stable sales

In 2011 ABB Switzerland generated sales revenue of CHF 3.57 billion, on a par with the previous year (2010: CHF 3.6 billion). New orders declined year-on-year by 7 percent to CHF 3.37 billion (2010: CHF 3.61 billion). This was due to the global economic slowdown in the second half of the year. As of December 31, 2011, ABB Switzerland had 6,647 employees (2010: 6,137).

Two companies acquired in Ticino

ABB Switzerland has continued to invest directly in the future. At ABB Semiconductors in Lenzburg, a large investment project valued at CHF 200 million has been completed successfully.

In the canton of Ticino, ABB acquired Trasfor, a leading manufacturer of dry-type transformers for low-voltage and medium-voltage applications, and Newave, an innovative company in the uninterruptible power supply industry. Through these acquisitions, ABB Switzerland increased its product range as well as its presence in the home market.

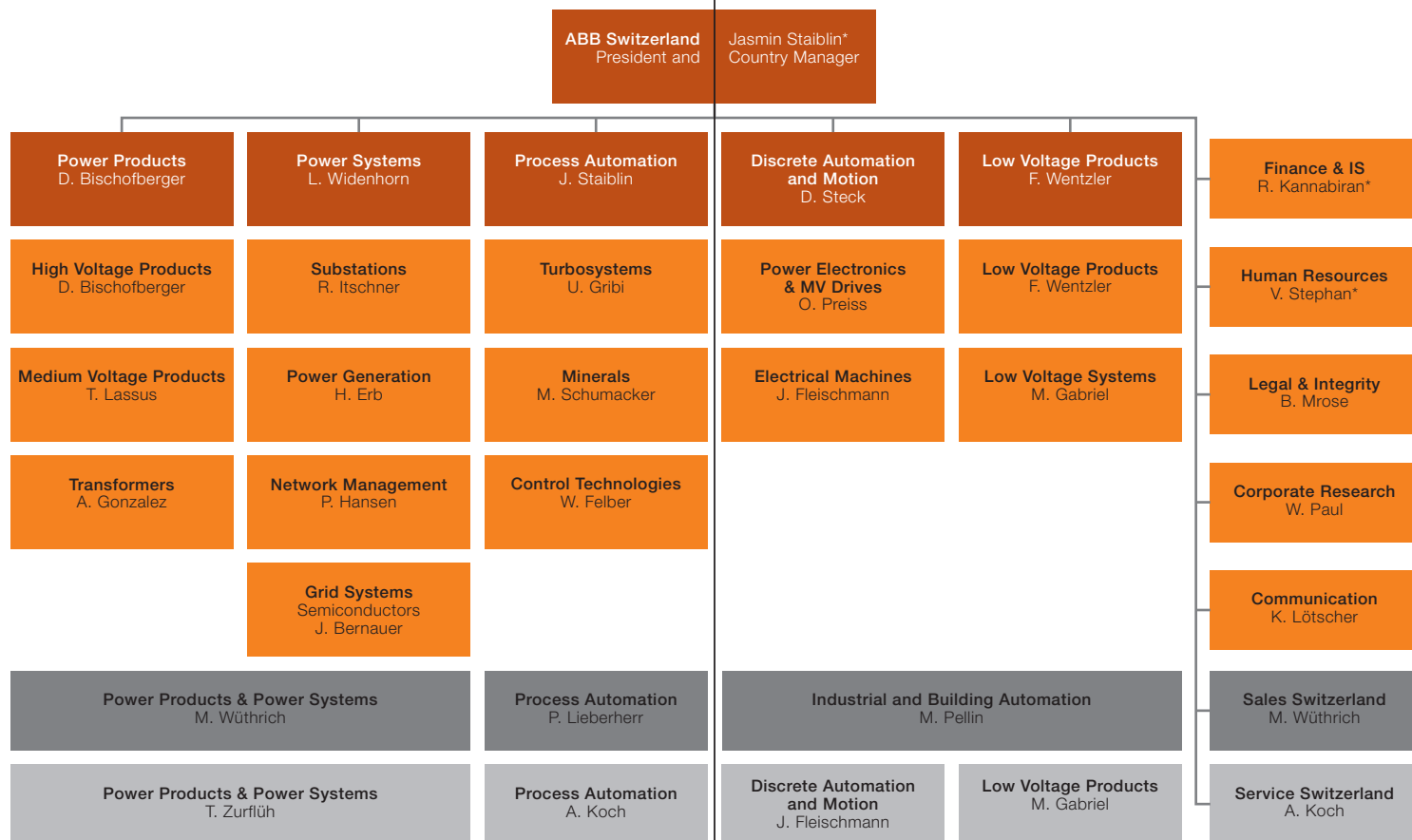
ABB Switzerland in 2011

Revenue (in millions of Swiss francs)	3,571
Orders received (in millions of Swiss francs)	3,368
Employees	6,647
Research and development (in millions of Swiss francs)	412

Orders received by ABB Switzerland in 2011 (in millions of Swiss francs)

Switzerland	578
Rest of Europe	1,317
Asia	615
Middle East and Africa	443
America	415

ABB Switzerland organization



*Member of the Country Executive Team

■ Sales Domestic Market
■ Services Domestic Market



Renewable energies Water, wind and sun

The use of renewable energy sources is growing continuously. Wind farms are appearing along the European coastline, while new solar plants are emerging in Spain and North Africa. At the same time, the Alpine countries are expanding their hydroelectric and pumped storage power plants to create additional capacity.

ABB supports the expansion of renewable energies and offers efficient technologies and key components for the generation, transmission and distribution of electrical energy from solar, wind and hydropower.

Renewable energy from wind

For the Global Tech I offshore wind farm in the German North Sea, ABB will deliver several 5 megawatt (MW) frequency converters. These converters regulate the power generated to a set frequency, regardless of wind strength, allowing it to be fed into the grid.

Full-scale renovation of hydroelectric power plants

Kraftwerke Hinterrhein AG will complete a full-scale renovation of its four power plants by 2017, an investment of around CHF 275 million. ABB will provide all the auxiliary and emergency power systems and transformers and will renovate two outdoor switchgear units.

Hydroelectric generator renovation

For the Stalden plant operated by Kraftwerke Mattmark AG and the Riddes plant operated by Forces Motrices de Mauvoisin SA, ABB will deliver new active generator parts as well as AC generators.

Solar power in Thailand

In Thailand, ABB is involved in a number of 1.25 to 4.5 MW photovoltaic projects. ABB will supply the entire low-voltage system as well as remote switching systems for high-performance automatic DC generators.



Smart grids Intelligent grid management

The integration of renewable energy sources and the transfer of power across borders are presenting new challenges for the grid infrastructure. Any imbalances between generation and consumption can complicate grid management efforts. Further automation, to operate the power grid more intelligently, is key.

Through its technology leadership, ABB is heavily involved in the research and development of smart grids and offers a wide range of grid management and automation systems for high-voltage direct current transmission and various grid components.

Grid Monitoring – with foresight

In addition to a conventional grid control system, Swiss grid coordinator swissgrid uses the intelligent monitoring system PSGuard. Dangerous swings in the European high-voltage grid, for instance, can be identified immediately via signal readings accurately synchronized via satellite so that suitable countermeasures can be taken.

World's largest offshore HVDC system

ABB will supply the largest high-voltage direct current transmission (HVDC) system in the world, with a rated capacity of 900 MW. The new system will connect several offshore wind farms to the German power grid. Powerful semiconductor modules from Lenzburg will convert power delivered to the shore inside converter stations for around 1.5 million homes.

Switzerland's largest battery

Incorporating a battery into the smart grid could help ease peak loads and generation fluctuations. Together with EKZ, ABB is building Switzerland's largest storage battery with a 1 MW capacity. It can store up to 500 kilowatt hours (kWh) of electricity and share it with the grid.

Secure energy supply

Interruption-free and reliable

Making electrical energy available anytime, anywhere requires smooth generation, transmission and distribution from the supplier to the consumer.

For a secure energy supply, ABB offers a wide range of products, turnkey systems and services – from smart grid systems and power electronics to control systems, generator switches, transformers and switchgear. New systems are created and existing systems are retrofitted to meet the growing need for state-of-the-art energy technology.

Energy hub renovated

In Lavorgo, ABB replaced a 40-year-old outdoor switchgear unit with modern gas-insulated switchgear. The switching station, located in the Swiss canton of Ticino, is a major hub for trans-Alpine high-voltage transmission lines and thus for both the Swiss and Italian grid supply.

Run-of-the-river upgrades

BKW FMB Energie AG is upgrading its hydroelectric plants. It has signed a master agreement with ABB to supply gas-insulated medium-voltage switchgear, and protection and control equipment, for three plants in the cantons of Bern and Jura.

No power failures for data centers

The data center of the Swiss Confederation is equipped with one of the most energy-efficient uninterruptible power supplies (UPS) on the market. This innovative UPS from ABB is able to cover the enormous power requirements in the event of short outages without interruption, thus increasing reliability.





Smart house

Versatile building automation

In a smart grid, buildings are also an active component of the energy infrastructure. Knowing exactly how much energy a building needs and when, is becoming ever more important. Intelligent communication tools link all building services, allowing them to be monitored and controlled from a central location.

ABB is one of the world's leading providers of intelligent control systems, refined functions and high energy efficiency for office and residential building automation. ABB distribution systems also help secure energy supplies in the low- to medium-voltage range.

Energy-efficient building system technology

As part of a research project on smart grids, a section of the ABB Research Center in Dättwil has been equipped with the latest KNX building system technology. This allows more efficient operation of lighting, heating and air quality as well as providing a visual method by which to monitor power consumption. The intelligent KNX lighting control system alone can reduce energy use by about 30 percent.

Spreitenbach Environmental Arena

The latest building and energy technology is also being installed at the Spreitenbach Environmental Arena. ABB will supply the main distribution system, KNX automation as well as switches and sockets. This model for energy-efficient building will also be showcased in an exhibit on ABB building technology.

Sufficient power for office buildings

Switzerland's largest Minergie office building is being constructed in Zurich. ABB installed the main low-voltage distribution system covering all 16 floors of the new Credit Suisse building annex, which will house 2,000 staff members.



Energy efficiency From power plant to motor

Today, about 80 percent of generated primary energy is lost during generation, transmission and distribution to the consumer. Various studies show that enormous savings are possible if available energy is utilized better. In industry, speed-controlled drives allow electric motors to operate more efficiently. Last year, ABB drives worldwide saved around 220 million tons of CO₂ combined.

ABB is also leading the way in another field of innovation. In a pilot project, ABB is showing how direct current systems in data centers can result in lower losses – an energy-efficient solution with enormous potential for the future.

Efficient dry-type transformers

New ABB dry-type transformers can reduce transmission losses by up to 50 percent. Just one small 1,000 kilovolt-ampere (kVA) dry-type transformer can save about 140 tons of CO₂ over a period of 20 years. At ewz's Fällanden substation, the first EcoDry transformers are already in use.

DC for data centers

In Lupfig (Aargau), telecommunications service provider green.ch is building a globally groundbreaking data center. ABB is installing an innovative, energy-efficient DC power solution in a portion of the data center, which includes transformers and medium- and low-voltage distribution systems. Rectifiers and emergency power systems will reduce energy losses by 10 to 20 percent.

Drive saves over 300,000 kWh of electricity

Grange Resources, operator of the largest iron ore mining and pellet production facility in Australia, is upgrading the motors in two of its grinders with medium-voltage variable speed drives and switchgear from ABB. This will help the company save approximately 310,000 kWh per month, with a cost reduction equivalent to about CHF 14,000 per month.

Automated processes

Increasing productivity

Making processes more efficient and increasing productivity is one of the core competencies of ABB. Individually optimized, advanced automation solutions from ABB include high-level process control systems for production and operation as well as intelligent control, robotics, drives, efficient motors, sensors and actors.

ABB serves customers in the service sector, the chemical, pharmaceutical and food industries, the metal, paper, printing, oil and gas industries, in shipbuilding, in road, tunnel and building infrastructure and in the cement, building-materials, aluminum and ore-processing industries.

Beer-brewing robots

At the Müller Bräu brewery in Baden, an ABB robot does the heavy lifting, transporting weights of up to 270 kg during handling operations for the wash and fill system as well as bottle crate palleting.

Motors and drives for water supply

In a new high-pressure pumping station, efficient motors and drives from ABB ensure that the greater St. Gallen area is continuously supplied with top-quality drinking water via a kilometer-long pipeline system.

ABB technologies for mining

ABB teams from around the world joined forces in the Peruvian Andes. The Baden-Dättwil-based Minerals business unit installed three gearless drives for mills that grind 117,000 tons of copper ore per day. ABB Peru was responsible for the 800xA process control system. Also supplied were switch-gear and medium- and low-voltage drives.





Efficient transport E-mobility and vessel navigation

ABB is equally at home on the seven seas. Onboard container and cruise ships, agile Azipod drives and powerful turbochargers have become indispensable. They allow improved maneuverability of large ships in narrow harbors, as well as substantial energy savings.

If you drive a low-emission electric vehicle, you can charge it thanks to the ABB AC or DC battery-charging system.

Charging stations for electric cars

ABB offers a comprehensive portfolio of AC and DC charging points for fast and efficient charging at home, at work or on the road. ABB has its own charging stations and electric vehicles in various locations throughout Switzerland.

Double charging for better air

In the shipping business, increasingly strict requirements for emissions reduction present enormous challenges for large-engine manufacturers. ABB Turbo Systems in Baden supports these manufacturers with a newly developed two-stage turbocharger system that reduces nitrogen oxide emissions and fuel consumption while increasing engine performance.



Reliable transport By train or trolley

If you use public transportation, chances are you've been moved forward with the help of ABB. On trains, trolleys and buses, complete drive systems and components such as transformers and onboard power supply systems guarantee reliable, energy-efficient transportation. ABB's power supply technologies also ensure safe, uninterrupted operation of the railway infrastructure.

Geneva streetcars equipped with energy storage systems

Reliable drive technology from ABB is also helping power streetcars in Geneva. The new cars operated by Transports Publics Genevois are equipped with compact power converters, including additional energy storage systems for optimal management of electrical energy.

Drives for steep railways

The steep railways that cross over the Bernina Pass (2253 m above sea level) present an enormous challenge in terms of vehicles and drive technology. The new multiple unit Stadler Rail trains run by the Rhaetian Railway feature dual-system-capable ABB drive packages and traction transformers that expertly defy even the most extreme winter weather conditions.

Gotthard tunnel

ABB is installing the electrical equipment in the Gotthard tunnel for the most powerful operating ventilation system ever built. This includes medium-voltage feeders and drives for supply and exhaust fans inside the tunnel as well as instrumentation, low-voltage distribution, cabling and control systems for the jet fans on the portals.



Service Reliable and fast

The service team at ABB Switzerland makes sure that ABB equipment delivers round-the-clock maximum performance for the customer over its entire life. High availability and effective organization allow the team to be on site quickly in case of an emergency. Service begins with comprehensive advice during the procurement phase and includes support during commissioning, operation and maintenance, spare part and repair management, remote support as well as upgrades and retrofits – always with the goal of ensuring optimum productivity and system availability.

Service for transformers

Professional maintenance can prolong the life of transformers. Moisture in the insulation oil, for example, can increase the risk of failures. Using a special technique, ABB service employees have dried several transformers in Switzerland, including a 40-year-old transformer at ewz's Sils im Domleschg plant.

SBB modernization program

With the help of ABB, the Swiss Federal Railways (SBB) will modernize the power transformers throughout its rail network and its rolling stock. ABB will supply powerful onboard auxiliary converters for the railroad car and Zurich suburban railway retrofit. These will ensure the necessary energy supply for increased passenger comfort and help increase the appeal of rail travel.

First-ever single-chamber circuit breaker

ABB debuted new technology at the EGL substation in Filisur, an important switching station on the cross-Alpine high-voltage transit line. The existing gas-insulated switchgear with a rated voltage of 420 kV was retrofitted with a newly developed, compact and low-maintenance single-chamber circuit breaker.

Dedicated customer service

Comprehensive and competent

ABB customers in Switzerland are served by a customer-oriented sales and service organization, by key account teams or on-site by one of five regional offices. They offer products, systems and services from the comprehensive ABB portfolio and ensure easy connection to all points of contact at ABB Switzerland and the worldwide corporate network. Through close networking, extensive industry-specific knowledge and proximity to the customer, ABB sales and service professionals guarantee expert advice as well as sound technical and commercial support.

More information is available from the ABB Customer Contact Center at +41 (0) 844 845 845 or www.abb.ch.

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