Alstom in Switzerland

Over 120 years of experience in power generation and transport

Alstom’s Presence

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**KEY DATA**

- All sectors are present in Switzerland
- Over 6'500 employees
- R & D center in Baden and Birr
- Manufacturing units
  - Power: Baden/Birr
  - Transport: Neuhausen
  - Grid: Oberentfelden
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History

Alstom Power:

1891: Charles E.L. Brown and Walter Boveri establish the limited partnership Brown, Boveri & Cie in Baden with an initial workforce of 124 employees. Shortly afterwards, while still employed at Oerlikon Machinery Works, Brown manages the world’s first transmitting of a.c. high-voltage power over a distance of 175 km from Lauffen on the Neckar to Frankfurt on the Main.

1901: BBC builds the first steam turbines on the continent. Design of solid cylindrical rotor for high-speed turbo generators

1933: Patent for turbine rotors, consisting of individual steel disks welded together, for use in steam and gas turbines

1939: World’s first combustion gas turbine for generating electricity

1965: First water-cooled rotor and stator windings in large generators

1972: Commissioning of world’s largest steam turbine generating set (output 1300-MW, two shaft installation, USA)

1973: Opening of the group research center in Dättwil near Baden

1978: Sell-off a large part of the BBC business units in France to Alsthom Atlantique

1988: BBC and Asea merge to ABB, creating one of the world’s largest electrical engineering company.

1999: ALSTOM Power and ABB Kraftwerke AG merge to ABB ALSTOM Power

2000: ALSTOM take over the 50% share of ABB

+ Merger of ALSTOM AG with ALSTOM Power (Switzerland) Ltd to ALSTOM (Switzerland) Ltd

Alstom Grid:
The History of the Alstom Grid sector in Switzerland starts with the acquisition of the high- and medium voltage business from Sprecher & Schuh.

1900: Carl Sprecher sets up his company in Aarau, Switzerland

1902: Heinrich Schuh becomes a shareholder

1909: Creation of a Sprecher & Schuh subsidiary in Delle near Belfort in France

1921: Construction of the new assembly workshop with test lab for 50 kV oil blast switches

1934: The first spring-operated circuit breaker mechanism comes off the production line

1963: Opening of the high voltage plant in Oberentfelden

1972: Turnkey project activity begins

1986: Integration in GEC Alsthom under the name Sprecher Energie

1998: GEC Alsthom becomes Alstom and is floated on the stock market

2004: Integration into the AREVA group as AREVA T&D AG, Switzerland

2008: Extension and inauguration of the new workshops in Oberentfelden

2010: Integration into Alstom and creation of the new sector “Alstom Grid”
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Alstom Transport:

1853: The Swiss Coach Manufactory was founded in Neuhausen with an initial workforce of 150 employees.
1863: The company was renamed SIG Schweizerische Industriegesellschaft and produced all sort of industrial goods.
1961: First electric Trans-European-Express-Train, able to run all over Europe
1986: Concentration on design, engineering and manufacturing of bogies
1995: The railway activities of SIG were sold to Fiat.
2001: Alstom took over the railway-business of Fiat. ALSTOM Schienenfahrzeuge AG in Neuhausen became part of Alstom.

Partnerships

Alstom Inspection Robotics (2006)
It is a joint venture of Alstom Switzerland and the ETH Zurich and develops autonomous inspection robots for power plants, as well as for chemical and petrochemical plants. They help shorten maintenance and downtimes in power plants and thus contribute to their safe operation.

Corporate Social Responsibility

High-tech cooperation between industry and university:
Alstom maintains close relations to major universities, particularly the ETH Zurich, the ETH Lausanne and the technical universities, as well as the Paul Scherrer Institute. Alstom regularly exchanges ideas with the centres of excellence at these institutes and supports the activities of their departments. This is because research and development are an integral part of our long-term business strategy.

Supply of apprenticeship places:
We are particularly keen to ensure a flow of qualified young workers. Over 250 young people are currently taking apprenticeships at Alstom Switzerland. We offer a variety of apprenticeships including general engineering, design, logistics, IT and commercial professions.

Alstom supports Park innovAARE
With the support of Park innovAAre, Alstom wants to pursue and develop a decades-long tradition of innovation in the energy sector at the sites in Baden, Birr and Oberentfelden. Park innovAAre’s position in the energy canton of Aargau means Swiss research institutes and industrial companies can make a substantial contribution to supplying efficient sustainable energy to the world’s population.

Awards and Certification

The manufacturing facilities of Alstom Power in Switzerland are all certified to the international Standards Organisation (ISO) 9001 Quality System Standard and to ISO 14001 environmental management and OHSAS 18001 occupational health & safety management systems.
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References and Ongoing Projects

Power

Alstom Power in Switzerland has profound knowledge, know-how and professional competence in research and development, engineering, manufacturing and project management. More than 95% of its products and services are exported.

Renewable Power (Hydro)

References:
- Bieudron 3x423 MW – 1999
- Rheinfelden 4x25 MW – 2011
- Bavona 2x90 MW – 2011
- Fionnay 3x60 MW – 2010
- Chancy Pougny I/II 2x11 MW – 2008
- Chancy Pougny III / IV 2x11 MW – 2012

Projects in execution:
- ALPIQ, Nant de Drance Ext, 6 x 157 MW
- Linth-Limmern, Linthal 2015; 4 x 250 MW
- Tierfehd, 3 x 90 MW
- Mapragg/Sarelli, 3 x 120 MW + 2 x 50 MWA generators
- Göschenen 2x 53 MVA + 1 x 22 MVA generators
- Nendaz (Grande Dixence) 4 x 80 MVA generators

Renewable Power (Wind)

- Windpark Grenchenberg: Alstom chosen as preferred supplier for 6 ECO 122 wind turbines with a capacity of 2.7 MW each. This is the first wind park project for Alstom in Switzerland.

Thermal Power

References:
- Beznau I 2x 190 MW – 1969
- Beznau II 2x 190 MW – 1971
- Mühleberg 2x 185 MW – 1972
- Leibstadt 1255 MW – 1984
- Leibstadt 1275 MW – 2012
- Leibstadt Engineering order for replacement of moisture-separator reheater – 2014
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References and Ongoing Projects

Transport
Alstom Transport in Switzerland is specialising in small series, custom production and maintenance. Neuhausen is also Alstom’s centre for static and dynamic testing of bogies and components.

References:

• 8 new high-speed tilting trains ETR 610 (2012) ordered by Cisalpino Ltd (joint venture of the Italian railways Trenitalia and the Swiss federal railways SBB-CFF-FFS) to serve the Gotthard line – one of Europe’s most important North/South railway connections.

• Automatic metro of Lausanne (2008): Metro cars, tracks, energy supply and signalling with communication based train-control for a fully automatic operation; slope of 12%.


• First ERTMS-line in Switzerland (2006): Alstom equipped a 45 km long line with ETCS as well as more than 500 trains.

• Regional trains (2006): The consortium Alstom/Bombardier produced 13 (in a second series another 12) low-floor EMU’s for BLS AG.

• Trams (2006): The consortium Alstom/Bombardier produced 82 low-floor metric trams for VBZ (Zurich Transport Authority).
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References and Ongoing Projects

Alstom Grid in Oberentfelden, Switzerland, designs and manufactures high voltage gas insulated substations (GIS) from 72.5 kV to 170 kV. Installation, commissioning, maintenance, retrofit work as well as after-sales service and profound training on the equipment are also part of the core competencies.

Alstom Grid in Oberentfelden also designs and produces spring operating mechanisms for AIS and GIS circuit breakers up to 800 kV.

References:

- EGL Grid AG, modernisation of substation Soazza: The turnkey delivery included 9 bays 220 kV and 2 bays 380 kV, including civil works
- AET Azienda Elettrica Ticinese, underground substation 50/16 kV Sigrinno Bellinzona with 4 bays GIS F35
- EBS Schwyz AG, substation 50/15 kV Nümmatt Seewen, with 5 bays GIS F35
- CKW Lucerne, replacement of the substation Ruopigen: Gas insulated substation F35, 110 kV, double busbar with 21 bays (line bays, transformer bays, coupling bays, busbar sectiona.ing disconnectors)
- Other gas insulated substations were delivered to EKZ and EKS AG, substation Raflz
- Engadiner Kraftwerke AG, substation F35 with 6 bays for a hydro power plant in the Swiss National Park (Ova Spin)
- SBB/CFF/FFS: 18 pcs 132 kV circuit breakers HGF 113 with spring operating mechanisms, type FK2-6 to SBB
- Groupe E: To ensure the need of energy of 260'000 users, Groupe E AG ordered the "e-teraplatform", consisting of a complete set of EMS/DMS functions (Energy and Distribution Management System). This system controls and supervises 250 RTU (Remote Terminal Units) with totally 3'500 stations from 125/60 kV till medium- and low voltage as well as 11 hydroelectric power plants

Ongoing projects:

- SBB, frame agreement circuit breaker 16 2/3 Hz
- EWZ, frame agreement power transformer
  - EKZ, frame agreement power transformer
  - EWZ, KW Tinizong, GCB & IPB
  - Romande Energie, GIS Substation Gland and La Longeraie
- WWZ ENERGIE AG, Zug – UW HERTI – 110 kV GIS turnkey
  - EWZ, frame agreement power transformer
- Riddes. Total renovation and improvements of the 22 kV 63 kA switchgear: new building for GIS with 13 bays 2kV GIS, renovation of gantries and foundations
- SBB/CFF/FFS: Alstom appointed general contractor for new GIS substation incl. supply of 132 kV-16.7 Hz gas-insulated switchgear
  - BKW: Frame agreement for 72.5 kV GIS substations: Batch 1 – 48 GIS bays to be delivered 2013-2015 / batch2 – 44 GIS bays to be delivered 2016-2018