MGBahn, Ulrichen, Switzerland
Traction substation helps boost power in the Alps

MGBahn carries about 6.1 million passengers and 100,000 tons of freight annually over 153 kilometers of track with altitude differences of 2,464 meters. The railway run by the MGBahn is located in the heart of the Swiss Alps and connects skiing and tourist hubs including Zermatt, at the foot of the Matterhorn, with Andermatt, a mountain town near the Gotthard Pass. On this line, ABB installed a traction substation at an altitude of 1,346 meters above sea level near Ulrichen to ensure reliable power supply and enhance voltage stability.

ABB’s solution
As part of this turnkey contract, ABB designed, supplied, installed and commissioned a 132/11 kilovolt (kV) traction substation. Key products supplied included 132 kV / 16.7 Hz gas-insulated switchgear, 11 kV / 16.7 Hz air-insulated switchgear, traction transformers rated at 10 megavolt ampere (MVA) and auxiliary power supply equipment. The substation is also equipped with automation, protection and telecommunication systems.

Customer benefits
• Proficient turnkey implementation by experienced system integrator
• Higher capacity and enhanced voltage stability to meet increased demand
• Reliable power supply during the planned rehabilitation of the Furka tunnel
• Scalable systems using state-of-the-art and proven technologies enabling future extensions
• Optimal solutions based on long experience and in-depth knowledge of the demands of the grid

ABB constructed a new traction substation at an altitude of 1,346 meters above sea level for the Matterhorn Gotthard Railway (MGBahn) company. The substation helps boost power supply, creates redundancy for higher availability and enables increased train frequencies to meet the expected future traffic increase in the heart of the Swiss Alps.
AC and DC traction power supply systems
ABB is an experienced turnkey partner for AC and DC traction substations for all types of applications.
- DC traction substations with standard voltages of 750 V DC, 1,500 V DC and 3,000 V DC
- Complete substation packages including DC switchgear, transformers, rectifiers, substation automation, control and protection systems
- AC traction substations for 16.7, 25, 50 or 60 Hz applications

Comprising single- or two-phase feeder substations and switching posts, autotransformer stations, substation automation, control and protection systems

ABB’s traction power supply offerings
- Complete electrification for main line railways, metros and urban transport systems
- AC and DC traction substations
- Reversible DC traction substations
- Wayside energy storage systems
- Static frequency converter stations
- Power quality systems
- Network management, substation automation, control, protection and telecommunications systems
- System studies and traction power supply simulations
- Turnkey project implementation from design to commissioning and maintenance

ABB has a range of power and automation products and solutions for the rail industry and a vast global installed base. Increasing concern for the environment, rapid urbanization, the need to move more people and freight faster and volatile fuel prices make rail a strategic focus sector for the company.

Inside view of the Ulrichen substation

Matterhorn Gotthard Bahn, Switzerland