

Delivering power for a new high speed railway line crossing the Alps

ABB has won the turnkey contract for traction power supply and power distribution systems for the new Lötschberg base line.



Picture Courtesy: BLS AlpTransit AG

The Need

On the Lötschberg, as part of the NRLA concept, the new Lötschberg base section is being constructed as a tunnel between Frutigen in the Kandertal and Raron in the Valais.

With its length of 34.7 km, the dual tube Lötschberg tunnel is one of the longest railway tunnels in the world.

Within the framework of the agreement with the Swiss Confederation, BLS AlpTransit AG has the task of designing and constructing the new Lötschberg base line.

Together with the Simplon tunnel, the Lötschberg base tunnel makes up the new Lötschberg-Simplon line. The aim of Swiss transport policy

is to shift transalpine transit goods from road to rail.

Numerous rail technology systems are needed to ensure that rail operations will run smoothly throughout the two tunnel tubes under the Lötschberg from 2007 onward. This will allow crossing Switzerland in less than two hours.

Above all, the rail technology must meet stringent safety requirements and guarantee reliable operation of the railway.

Project Details

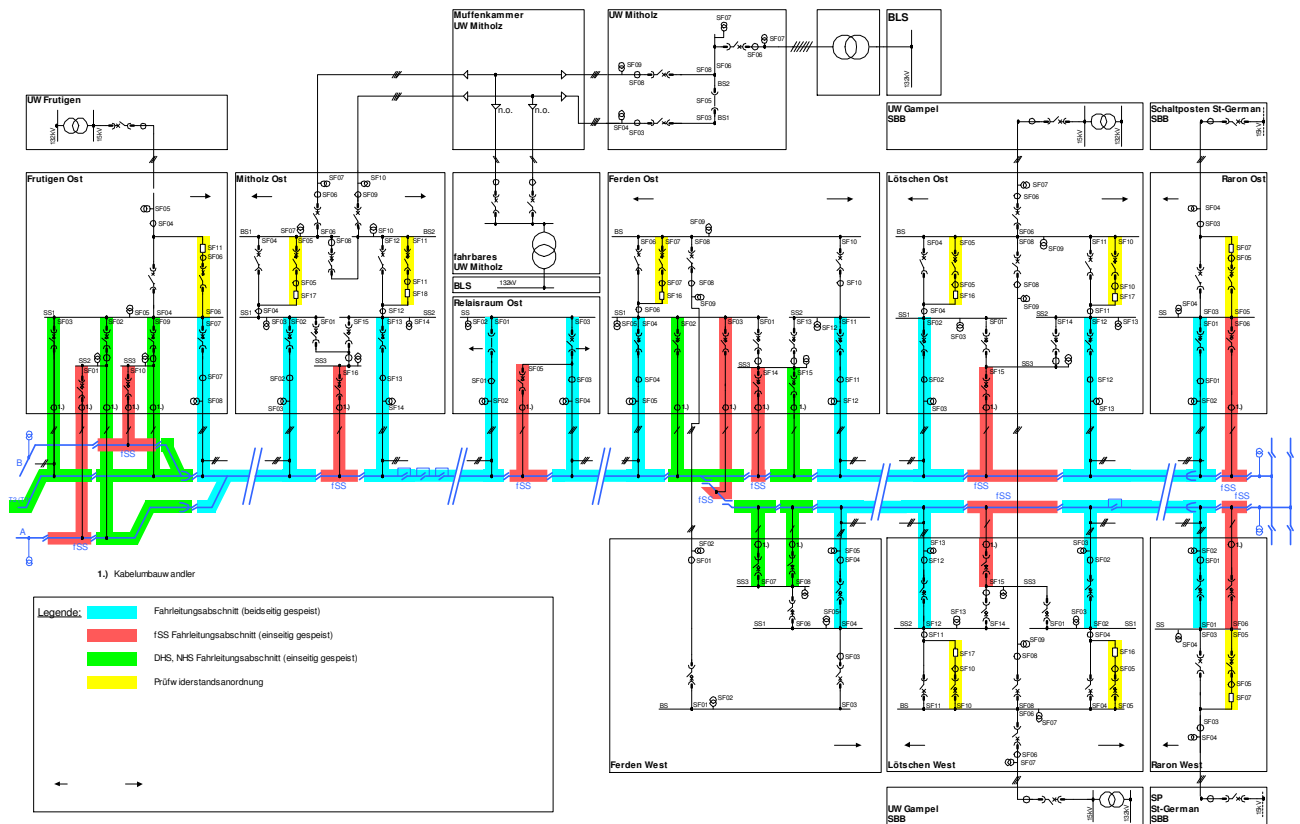
ABB in a consortium with AREVA, BKW and EVWR has been awarded the contract for the design, supply, installation and commissioning of the power supply package.

ABB's scope includes the single phase 15 kV 16.7 Hz traction power supply including control and protection as well as the medium voltage distribution for the infrastructure.

More than 200 air-insulated single phase and three phase panels of type Uni-Gear have been installed in technical rooms and special containers along the line.

Design and manufacturing started in 2003, installation commenced in the second half of 2004 and commissioning started in 2006. Commercial operation of the new Lötschberg base line is planned for mid 2007.

The picture below shows the traction power supply scheme for the new Löttschberg base line. The system is being fed from 2 traction substations operated by BLS, 1 traction substation and 1 sectioning post operated by SBB. Most of the switchgear is installed in pre-fabricated and tested indoor modules.



Switchgear Type UniGear

The single phase metal-clad, air-insulated switchgear type UniGear R36 is designed to withstand high short circuit currents up to 50 kA at 16.7 Hz, providing at the same time a high degree of security for the system itself and the operating personnel.

For the medium voltage distribution, three phase metal-clad, air-insulated switchgear type UniGear ZS1 has been installed.

The use of single phase and three phase panels applying the same technology based on ABB's product family

UniGear is a unique feature of the new Löttschberg base line, simplifying the tasks for the operating and service personnel significantly.

Pre-fabricated Modules

A modern concept of pre-fabricated and fully tested modules has been applied. The picture below shows a typical arrangement of traction power modules.



Applying such a concept, almost no installation work had to be carried out in the tunnel. Commissioning of the complete system has been simplified, resulting in a considerable reduction of the overall project duration.



The picture above shows the positioning of a module in a technical room.