

Cable installation in mountainous areas, example of a successful installation and service

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In the well-known touristical area of Carinthia in Austria, near Mühldorf a hydro power plant was extended (Reisseck II).

As the energy generating turbine is situated on the mountain site at a level of ~1600 m above ground, the produced energy has to be transmitted downwards to the bottom of the valley, where a substation is distributing the power to the Austrian distribution network.

It was decided to use a 2XS(FL)2Y 1200 mm² Cu RMS 127/220 kV HV underground cable for transmission. The cable was laid in a concrete trough with a high slope. The tunnel had to cross a serpentine road and a railway track of the Austrian Railway, so cable bridges were applied.

Due to the different laying conditions along the cable route and the high slope (average 30%) of the trough, the requirements for cable laying and cable fixing especially in terms of thermo mechanical cycles, pulling forces and grounding conditions were challenging.

With respect to the jointing positions mechanical aspects as well as the electrical bonding requirements had to be considered. Possible access points had to be found to secure the safe operation of the cable system and enable maintenance services of the bonding devices.

Regardless of all these challenges with all parties a proper cable solution was found and the cable is already under operation. In our contribution a detailed description of the engineering steps will be presented.