

Media release

25 May 2020

Swissgrid Media Service
Bleichemattstrasse 31
P.O. Box
5001 Aarau
Switzerland

T +41 58 580 31 00
media@swissgrid.ch
www.swissgrid.ch

The underground cable is live

Swissgrid commissions the new Beznau – Birr extra-high voltage line a year early

Swissgrid has converted the existing line between Beznau and Birr to 380 kV. It marks the first time that an extended section of an extra-high voltage line has been laid underground. On 19 May, Swissgrid successfully commissioned the line a year earlier than planned.

The increase in voltage between Beznau (AG) and Mettlen (LU) from 220 to 380 kilovolts is part of Swissgrid's «Strategic Grid 2025» and secures the energy distribution and security of supply in the Zurich metropolitan area, Central Switzerland and the Swiss Central Plateau. The roughly 6.5-kilometre section between Rüfenach and Habsburg was the last part of the line between Beznau and Birr that had not yet been converted.

First underground extra-high voltage cable live

Swissgrid laid its very first extended section of a 380 kV extra-high voltage line underground at the «Gäbihübel», in the municipality of Bözberg/Riniken, along the Beznau – Birr section. Transition structures were built at both ends of the 1.3-kilometre section in order to connect the underground cable and overhead line. While the underground cables were installed in the conduit blocks back in the summer of 2019, the 5.2-kilometre overhead line section was only recently completed. This involved the erection of 14 new pylons and the installation of the conductors. After a construction period of around two years, the Swissgrid grid control room connected the new 380 kV line to the transmission grid on 19 May 2020. Electricity has been flowing through the first extra-high voltage line to be installed underground ever since. The main reason for the completion ahead of schedule was the successful project and implementation planning, while the relatively warm and dry weather, especially in the winter of 2018/19, also benefited the construction work on the underground cable section.

At the «Gäbihübel» it is easy to see the effects of the underground laying of a section of a 380 kV extra-high voltage line on the landscape and environment as well as the challenges presented in construction, operation and maintenance. That is why Swissgrid has relied on scientific support in all phases of construction, commissioning and during the continued operation of the underground cable. Investigations include the temperature behaviour of the underground cable conductors depending on the electricity load, the temperature profile in the soil above the conduit block and in the wider area as well as the biodiversity in the soil. The cost of the underground cable section at the «Gäbihübel», with two transition structures, amounted to around 20.4 million francs. This makes the costs for the underground section of the Beznau –

Media release

25 May 2020

Birr extra-high voltage line about 6 times higher than for an overhead line over its entire service life. The costs of underground cabling are higher than an overhead line by a certain factor, which is dependent on local circumstances and the technology used.

Dismantling the 220 kV line

The dismantling of the old 220-kilovolt overhead line between Rüfenach and Habsburg started in May. A total of 19 pylons were removed, which particularly benefited the townscapes of Neu-Riniken and Hafen. In some cases, access routes had to be created to reach the pylons. The pylons were then removed by crane and dismantled into smaller pieces on the ground. The concrete foundations will be crushed and transported away and the terrain will be returned to its original condition. The dismantling work for the current line is expected to take until the end of 2020.

Underground cabling

As opposed to overhead lines, underground cabling has rarely been used at the highest voltage level in Switzerland. This is because its use is only possible under certain conditions. A number of critical factors, such as soil conditions, transmission capacity and route length, need to be taken into account. The Federal Council reaches a decision for an underground cable or an overhead line during the sectoral plan process. It is the result of a comprehensive balancing of interests. Regional development, the environment and economic viability are factors which are taken into consideration in addition to technical aspects. A monitoring group established by the Swiss Federal Office of Energy for each project has played an important role for many years in this respect. It is tasked with objectifying the discussion and enabling impartial and clear decisions.

More detailed information on the grid project is available on the website at www.swissgrid.ch/beznau-birr

For more information, visit media@swissgrid.ch or call +41 58 580 31 00.

Powering the future

Swissgrid is the national grid company. As the owner of Switzerland's extra-high-voltage grid, it is responsible for operating the grid safely and without discrimination and for maintaining, modernising and expanding the grid efficiently and with respect for the environment. Swissgrid has more than 500 highly qualified people from 22 countries at its sites in Aarau, Prilly, Castione, Landquart, Laufenburg, Ostermundigen and Uznach. As a member of the European Network of Transmission System Operators for Electricity (ENTSO-E), it is also responsible for grid planning, system management and market design in the European exchange of electricity. The majority of Swissgrid's share capital is jointly held by various Swiss electricity companies.