

Media release
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A new life for the power cables at the bottom of Lake Lugano

In mid-January, Swissgrid and Swiss Federal Railways (SBB) obtained a permit for the modernisation of the 150 kV power lines between Morcote and Brusino. The section in question ensures the supply of electricity to the Sottoceneri region and is quite unusual: the power cables are largely laid in cable conduits at the bottom of Lake Lugano.

The power lines that make up Swissgrid's national extra-high-voltage grid are electricity highways: they transport energy in large quantities and over long distances. Together with the distribution grids, they form the backbone of a secure supply of electricity and represent the link between power plants and consumers.

A 150 kV line runs between the Manno and Mendrisio switching stations, ensuring the supply of electricity to the Sottoceneri region. A 66 kV SBB line is also installed on the same route. This line is of vital importance for the proper functioning of the region's railway network, particularly in the Monte Ceneri Rail Tunnel.

These particular lines are quite unusual: between the portals of Morcote and Brusino, the power cables are laid in special cable conduits at the bottom of Lake Lugano.

Modernisation needed

The existing cables were laid in the mid-1980s, and after almost 40 years of service, they have reached the end of their lifecycle. Swissgrid and SBB have therefore drawn up a project to replace them: initially, the two SBB cables will be replaced, then Swissgrid will replace six of its own cables.

There are a further six Swissgrid cables on the same route, but since these were laid in 2008, they will remain in place.

The planning application was submitted to the Federal Inspectorate for Heavy Current Installations (ESTI) in the spring of last year, and the permit was issued at the end of 2023. The decision has now become final, and Swissgrid and SBB can start planning the work. The total investment amounts to CHF 9.4 million, of which CHF 6.8 million will be borne by Swissgrid and CHF 2.6 million by SBB.

A feat of engineering

The replacement of a lake cable is a feat of engineering that poses a number of challenges in terms of logistics and planning.

In total, the route between Morcote and Brusino measures 2.8 km, and the cables are laid below the surface of the lake along a length of approximately 2.4 km. The project envisages that the work will be carried out on land: the cables will be removed and laid from the landing stations located near the two transition portals between the overhead line and the cable line in Brusino and Morcote.

Work is scheduled to start in October of this year for a period of about ten months until July 2025.

A special case

Swissgrid's extra-high-voltage grid normally comprises 380 or 220 kV lines. One of the things that makes this project so unique is that the 150 kV line belongs to Swissgrid, despite the lower voltage. While remaining within the national borders, the 150 kV line is regarded as a feeder line for the cross-border transmission system. For this reason, the Federal Administrative Court ruled on 12 April 2012 that the 150 kV Manno – Mendrisio line should be transferred to Swissgrid AG as part of the cross-border transmission system ([2C_475/2012 10.12.2012 – Bundesgericht \(bger.ch\)](#)).

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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 600 highly qualified people from 28 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.