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Ingenuity for life

High-voltage cable systems

Solutions for cable systems

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High-voltage cable systems

Growing energy demand, an increase in renewable energy sources, growing megacities: These are just a few of today's challenges for our energy systems.

The power transmission infrastructure needs to be prepared for these challenges. Siemens has consistently focused on reliable and efficient transmission and distribution solutions using cable systems – and that mission has not changed to this day.

Cable connection to an overhead line

AC cable systems on offshore converter platform

Your need

The backbone of an electric power network consists of high-voltage cable systems. Solutions with improved technical sophistication are needed in megacities as well as for the development of the power supply in emerging countries. Limited space and other external factors that restrict the load-carrying capacity of cable systems require special measures to secure the reliable transmission of electric power. At the same time, highly specific requirements for the expansion of transmission networks are emerging worldwide as a result of the integration of renewable energies.

Our solution

As your partner we offer the full range of services for high-voltage cable systems up to 500 kV from a single source, starting with engineering of the cable dimensions up to the final test after completing the installation. Backed by over 150 years of experience, we have an excellent overview of the entire market. We can provide you with manufacturer-neutral advice, support, and technically optimized solutions for your transmission project. We use technologies and high-quality materials that precisely match your needs. Our support also covers all work activities, from providing cable-laying tools to professionally assembling the cable-sealing ends and joints.

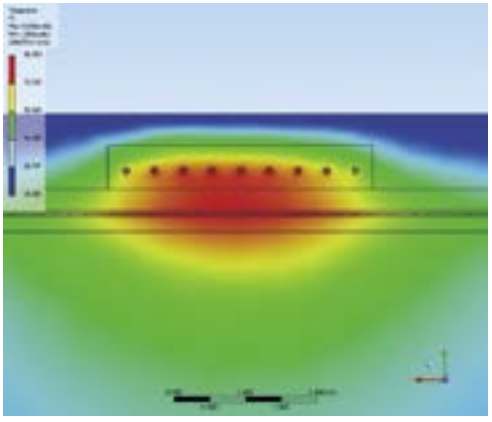
We also assist your planning to retrofit, convert, or extend your transmission system. If you intend to dismantle an existing installation, we will manage the disposal or recycling of cables and cable fittings in line with environmental regulations. Performing all our work activities in accordance with national and international regulations and guidelines is mandatory for us.

Your advantages

- Receive technically and commercially **optimized manufacturer-neutral solutions.**
- Profit from our experience in collaborating **with international contractors** on project management and documentation issues.
- Benefit from our **long experience** in developing and realizing complex engineering solutions.
- Rely on **short reaction times** for fault clearance.

Our range of services

- Consulting, preparing tender documents and project-based specifications
- System engineering, clarification/ calculation of mutual interference (as regards EMC and heating) between different disciplines on site
- Manufacturer-neutral consulting and project optimization
- Turnkey projects handled by Certified Project Managers
- Maintenance, fault location, fault clearance, inspections, modernization, and dismantling of old installations
- Installation and commissioning of medium-voltage and high-voltage cable systems from a single source in accordance with national and international regulations and recommendations



Example of the temperature distribution in a 220-kV cable circuit

- Preparation of complete bids, clarification of interfaces, procurement
- Fault diagnosis on existing cable installations: for example, with temperature measurement using thermal imaging camera, TE measurement, or cable oil inspections

Our references

Six kilometers for the German transition to a new energy mix

Two 110-kV XLPE cable systems with a transmission capacity of 200 MVA each for the feed in of wind power have been installed in Northern Germany. A 36 km cable with a conductor cross-section of 2,500 sq mm can be installed within a time frame of 10 weeks, complete with commissioning.

Energy backbone for industry

We implemented three 220-kV systems, 26 110-kV systems, and 149-MV cable systems in the steel plants in Salzgitter and Peine. We were involved in determining the cable route and conducted implementation planning and construction-site management. We installed a total of 13 km of 220-kV cables, 46 km of 110-kV cables, and more than 100 km of MV cables, all during ongoing plant operation.

Longest single installed cable for Portugal

We installed two 400-kV XLPE cable systems, each with a transmission capacity of 536 MVA, in a cavern for a hydro power plant in northern Braga. A special challenge during this project was laying the single 1,760 m cable length with several bend sections.

Power for a boomtown

Four cable systems consisting of 400-kV XLPE cables with lead sheathing and copper wire shielding and a total length of 16 kilometers were installed for a combined cycle power plant in Abu Dhabi. The scope of work also included installing the 400-kV cable-sealing ends as well as the 400-kV connection joints in walk-in pits.

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