High voltage cables –
the arteries of the power grid
ABB offers high-voltage power cable systems for underground and submarine applications. We design, produce and install polymeric insulated cables for direct current (DC) or alternating current (AC) and mass-impregnated, paper-insulated cables for DC. Combined with ABB’s cable accessories they form a reliable cable system with a very long service life. Cable systems from ABB can be found all over the world, transmitting power between countries, connecting offshore wind farms and oil/gas platforms to mainland grids and feeding power into major cities.

Your needs – our response
The requirement from our customer is to have a connection from A to B – with minimal environmental impact and low losses at the lowest cost. The customer decides the degree of ABB’s involvement. It could be assisting during the pre-engineering phase or making preparative studies of the power grid in order to design and offer the best solution. ABB can offer turnkey systems and project management or just cables, accessories, or installation of the cable system.

Customer value
The AC- as well as the DC-cable systems from ABB are very reliable. They have a service life of many decades and a low life cycle cost. There are many other reasons for choosing underground or submarine cable transmission solutions as for example lower electrical and magnetic fields, avoiding exposure to harsh weather conditions or minimizing the environmental impact.

Since we manufacture the power cables as well as the associated cable accessories, the products are designed to work together. We know what we connect and by having one supplier for the entire system our customer can save a lot of time, effort and money.
Scope of supply
Our goal is to offer the most optimal solution for underground and submarine cable systems which can include:
- Power cables for underground or submarine applications
  - XLPE (polymeric insulation) cables for AC up to 1,000 MVA at 420 kV.
  - HVDC Light® (polymeric insulation) cable systems for DC up to 1,100 MW at +/- 320 kV.
  - Paper-insulated (mass-impregnated paper insulation) cables for DC up to 2,000 MW at +/- 500 kV (bipole).
- Separate or integrated optical fibre cable
- Cable accessories
- System design for network optimization
- Civil works
- Cable laying, installation and supervision
- Testing and start-up operations
- Disassembly and recovery of old cables
- Fault locating and cable repair
- Complete project management
- Training

ABB – pioneers and leaders in cable technology
Very few manufacturers can point to such a long tradition in the high-voltage field as ABB. We delivered our first electrical cable as early as 1883! ABB has always been a pioneer in the high-voltage field and we have many world’s first and world records among our references.

Customer demands have challenged our development and we have risen to the occasion. In this interaction with customers we have taken our major steps of successful market introductions. This is valid both for DC and AC cables. We are interested to work with our customers to take the next steps in this spirit.

Power Cable Systems
Our cable development has for HVDC applications been closely linked to converter development from the start in the early 50’s until today (HVDC Light® cables). DC cables can be used over long distances and has reached such capacity that they now can substitute long overhead lines.

The latest example of customer driven development is a dynamic polymeric insulated cable we have designed for an oil platform in the North Sea. It is the world’s longest AC submarine cable involving dynamic cable to connect a floating platform to shore.

To maintain our position at the forefront of the cable technology, ABB invests heavily in research and development. Buying from ABB means buying the best and we are determined to meet our customers’ needs today, and well into the future.

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