



*Meter by meter, the NordLink submarine cables are lowered into the sea.
©TenneT*

Join the best:
15 - 19 April 2024



International Wire and Cable Trade Fair
Internationale Fachmesse Draht & Kabel
Düsseldorf, Germany | wire.de

Construction of electricity highways picks up pace

The energy transition is increasingly being viewed in European terms. This is because it must guarantee secure, cross-border generation of electricity from renewable energies. One successful example is the NordLink connection between Germany and Norway. And more will follow as the construction of electricity highways worldwide is picking up pace. Major orders await cable manufacturers.

At first glance, the 700-kilometre-long SuedLink direct current line from northern to southern Germany is just a connection to transport the energy generated by wind power in the north to Bavaria and Baden-Württemberg. But, according to the German Federal Network Agency, it also facilitates – together with NordLink – integration into the European transmission grid. This means, for example, that hydropower from Scandinavia and the Alpine countries can be combined with German wind power and photovoltaics. The go-ahead for the construction of SuedLink has now been given, and the line is scheduled to come into operation in 2028.



Messe
Düsseldorf

Messe Düsseldorf GmbH
Postfach 10 10 06
40001 Düsseldorf
Messeplatz
40474 Düsseldorf
Deutschland

Telefon +49 211 4560 01
Telefax +49 211 4560 668
Internet www.messe-duesseldorf.de
E-Mail info@messe-duesseldorf.de


Geschäftsführung:
Wolfram N. Diener (Vorsitzender)
Bernhard J. Stempfle
Erhard Wienkamp
Vorsitzender des Aufsichtsrats:
Dr. Stephan Keller

Amtsgericht Düsseldorf HRB 63
USt-IdNr. DE 119 360 948
St.Nr. 105/5830/0663

Mitgliedschaften der
Messe Düsseldorf:

 The global
Association of the
Exhibition Industry

 Ausstellungs- und
Messe-Ausschuss der
Deutschen Wirtschaft

 FKM – Gesellschaft zur
Freiwilligen Kontrolle von
Messe- und Ausstellungszahlen

Öffentliche Verkehrsmittel:
U78, U79: Messe Ost/Stockumer Kirchstr.
Bus 722: Messe-Center Verwaltung

Only proven quality

The 540-kilometre-long, extra-high voltage 'SuedOstLink' line between Saxony-Anhalt and Bavaria also contributes to system stability in the German-European transmission grid. The EU has also identified this line, due to be completed in 2027, as a 'project of common interest'. "This underlines the importance of new electricity highways such as 'SuedLink' and 'SuedOstLink' for the energy transition," emphasises the German government. Production of the SuedOstLink HVDC cable system is ready to start, the cable manufacturer reports. Construction of the power line in Thuringia is set to begin in 2024.

Beforehand, the system had to meet the strictest test criteria under the international standards. During the four-month test program, the mechanical robustness and electrical performance of the cable system was investigated, along with the water resistance of its components. According to information from the cable manufacturer Prysmian, the P-laser cable technology it has developed is the first 100 % recyclable, environmentally friendly, high-performance insulation technology based on HPTE (High Performance Thermoplastic Elastomers) "and reduces CO₂ emissions from manufacturing by 30 percent". Conserving resources is also an important factor in production.

SuedLink – a German megaproject

With a length of 700 kilometres and an investment of ten billion euros, SuedLink is the largest infrastructure project in Germany's energy transition. It consists of two schemes with a total of four underground cables. They will connect Brunsbüttel and Wilster in Schleswig-Holstein with Großgartach in Heilbronn (Baden-Württemberg) and Bergheimfeld/West in Schweinfurt (Bavaria). "The extra-high-voltage direct-current transmission employed enables low-loss power transport over long distances. From a purely arithmetical point of view, with its capacity of four gigawatts,



SuedLink can supply ten million households," explains TenneT, the company responsible for the northern section of the SuedLink line. The southern section of the route lies within the area covered by TransnetBW.

SuedLink will have a transmission power of 4 gigawatts, with a cable length of 3,040 kilometres and a total voltage of 1,050 kilovolts. The conductor cross-section of the copper cables is 2,100 mm², and the cables are 13.1 cm in diameter. The cables are designed so that electric fields remain in the cables. Integrated optical fibres enable fault diagnosis and localisation. According to TenneT, a technical service life of 60 to 80 years is assumed for the underground cables. The cables are being made by two manufacturers in five production facilities. Eight cable logistics areas will be laid out along the course of the line, and 465 unwinding sites are planned around the route.



M
Messe
Düsseldorf

The underground cable for the NordLink route is ready for transport. ©TenneT

NordLink as a lighthouse project

NordLink has already been completed. This 'green cable' enables the exchange of German wind energy with Norwegian hydropower. "NordLink is a lighthouse project and an enormously important building block of the European energy transition, helping to

compensate for periods when little renewable energy can be produced ('dunkelflauten'), while simultaneously making green energy available reliably and affordably in the EU," TenneT explains. Due to the length of the line, direct current is used to transmit current through the two cables (positive and negative polarities) connected to converter stations at each end. "Direct current is especially suitable for long distances and high transmission capacities," emphasises TenneT. It has been calculated that NordLink can supply around 3.6 million German households.

However, NordLink is just one part of a future increase in the interconnection of power plants and power lines across Europe and worldwide. The goal is energy security even in the face of an uncertain geopolitical situation, and the expansion of renewable energies. "The more power plants that are connected to each other, the better and more reliably we can compensate for shortages or surpluses of electricity. That is why more and more cross-border connections are being built, and submarine cables are even being planned between continents," explains Germany Trade & Invest (GTAI).



The submarine cables for NordLink are laid from a ship.

©TenneT

Major international projects

This is helping the Baltic states to accelerate their decoupling from the Russian electricity system. In the first phase, the domestic grid will be expanded; in the second phase, a direct-current connection between Lithuania and Poland will be established, accompanied by grid reinforcement in the two countries. A new direct, 330-kilometre-long submarine cable to Poland is planned as a cross-border connection.

The Greek electricity grid is being expanded so that it can accept more electricity from renewable sources. Investments in the grid and in storage systems are being made to support this. Most of the funding is going towards connecting the Aegean islands and Crete to the continental electricity grid.

Intercontinental megaprojects are planned. Greece, Cyprus and Egypt are planning an electricity link between Africa and Europe, the EuroAfrica Interconnector. The 1,400-kilometre-long submarine cable will supply green electricity to Europe. GTAI further reports that Greece and Bulgaria intend to establish a second link, approximately 150 kilometres in length.

Up to now, Morocco has been heavily dependent on energy imports. Now there are plans to turn things around: By 2040, it is intended that 70 percent of electricity should come from renewable sources – and this will require new cable connections. The plan to supply Europe with green electricity in the future is also coming to the fore. As part of this, Morocco is building a 1,500-square-kilometre solar and wind farm. A Moroccan-British electricity project will supply the United Kingdom with clean energy from the solar and wind farms via two 1.8-gigawatt high-voltage direct-current (HVDC) submarine cables with a length of around 3,800 kilometres.



The operators' expectations of the manufacturers of cables and cable-making equipment are therefore enormous – and naturally the manufacturers will be glad to fulfil them.

Trends and highlights from the wire, cable and tube industries can be experienced at wire & Tube Expo from 15 to 19 April 2024 in Düsseldorf. Current industry and product information can be found on the Internet portal at www.wire.de and www.Tube.de and on LinkedIn: <https://www.linkedin.com/showcase/wire-and-tube-leading-international-trade-fairs/>.

Press Contact wire und Tube 2024:

Petra Hartmann-Bresgen M.A.

Ulrike Osahon

Tel. +49(0)211/4560 -541/-992

Fax +49(0)211/4560 87-541/-992

HartmannP@messe-duesseldorf.de

OsahonU@messe-duesseldorf.de

