

The world's longest HVDC Light cable NordBalt HVDC Light connection, Sweden-Lithuania



- World's longest HVDC Light® underground and submarine cable
- Connects the power grids of the Baltic states and the Nordic countries
- Strengthens electricity supply and energy security on both sides of the Baltic Sea
- Integrates the emerging Baltic electricity trading market with the Nordic market

Scope of supply

- Turnkey HVDC Light transmission system
- HVDC Light converters
- Project management
- HVDC Light cable system
 - Cable system design, engineering and manufacture
 - Submarine and underground cable laying and installation
 - Cable joints, transition joints and terminations
 - Testing and commissioning

Cable data

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| Power rating | 700 MW |
| DC Voltage | ± 300 kV |
| Cable length | 2 x 400 km submarine HVDC Light cable (AI) 2 x 40 km underground HVDC Light cable (AI) 2 x 13 km underground HVDC Light cable (AI) |
| Customers | Svenska Kraftnät, Sweden LITGRID AB, Lithuania |
| Completion | 2015 |



ABB has already provided several of the existing HVDC and HVDC Light interconnections across the Baltic Sea, including those between Estonia and Finland (Estlink), Finland and Sweden (Fenno-Skan), Sweden and Poland (SwePol), Sweden and Germany (Baltic Cable), Denmark and Germany (Kontek), Denmark and Sweden (Konti-Skan 2), as well as the interconnections between Gotland and the Swedish mainland and between Denmark's eastern and western power grids.

The ABB solution

ABB is providing a complete HVDC Light interconnection for the transfer of power in either direction between the two power grids. The solution includes converter stations, submarine and underground cables, as well as system design and engineering, onshore and offshore installation, testing and commissioning.

The ABB HVDC Light solution has a power rating of 300 kW. It comprises two converter stations, one at Nybro in Sweden and the other at Klaipeda in Lithuania, where the power is converted from AC to DC for transfer in the HVDC Light cable system. The Swedish power grid has a rating of 400 kV AC and the Lithuanian grid a rating of 330 kV AC; the two grids are asynchronous.

The HVDC Light cable system comprises a 2 x 40 km HVDC Light underground cable on the Swedish side, a 2 x 13 km HVDC Light underground cable on the Lithuanian side, and a 2 x 400 km HVDC Light submarine cable across the Baltic Sea. The cable route has to pass through former mined areas and explosives dumping grounds, as well as cross through a Natura 2000 nature protection area on the Lithuanian side.

The project is scheduled for completion towards the end of 2015.

Customer benefits

- Complete HVDC Light grid interconnection from a single supplier
- Proven solution from the pioneer of HVDC cable technology
- Supplier expertise and reliability – ABB is the market and technology leader in submarine and underground high voltage direct current cables

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Customer needs

The NordBalt HVDC Light link is a joint project of the Swedish and Lithuanian transmission system operators (TSOs), Svenska Kraftnät and LITGRID AB.

The link is part of Lithuania's long-term strategy to secure its energy independence by interconnecting the power grids of the three Baltic states – Lithuania, Latvia and Estonia – with those of the Nordic countries and the European Union. It will also strengthen power supply in southern Sweden.

The interconnection will enable the emerging electricity market of Lithuania and its Baltic state neighbors to integrate with the Nordic and European electricity markets, thus improving competition and providing alternative sources of electric power.

Why ABB?

HVDC Light is an ABB technology for connecting transmission systems using submarine and underground cables. It offers several compelling benefits, including 'invisible' power lines, highly compact AC-DC converter stations, low cable and converter losses, and black start capability (the ability to rapidly restore system operations in the event of a system-wide power outage). HVDC Light also offers a unique raft of environmental benefits, including neutral electromagnetic fields, oil-free cables and minimal visibility.