

Offshore platforms; power from shore by HVDC Light®

HVDC Light® is a state-of-the-art power system designed to transmit power underground and underwater. It offers numerous environmental benefits, such as “invisible” power lines, neutral electromagnetic fields, oil-free cables and compact converter stations. These benefits make it possible to connect platforms to power from shore and hence reduce the CO₂ and NO_x discharges.

Your needs – Our response

The offshore industry demands a high quality, competitively priced power supply that has low environmental impact, light weight and small volume on platforms.

HVDC Light® transmission meets these needs and makes it cost-effective to supply power generated onshore to platforms.

Environmental restrictions, coupled with extreme sensitivity of neighbouring communities, hamper the development of overhead lines in coastal areas, thus making the option of undersea and underground cables attractive.

Customer Value

In 2005 ABB commissioned the first project in the world for offshore transmission with HVDC from Statoil, Norway. With the HVDC Light® technology power is transmitted via cable to Statoil's Troll A gas production platform in the North Sea. The project adds the following values:

- Reliable power supply
 - Simple design and redundancies
 - Power quality control
- Black start capability
- Simplified platform design
 - Weight reduction at platform may enable complete onshore assembly
 - Compact and low weight design reduces investments on platform
 - Short installation and implementation time
- Flexible, modular systems
 - Can easily be built or expanded to multiterminal system
 - Comprehensive factory testing and fast installation
 - Short installation and implementation time
- Robust, light-weight, oil-free cable system
 - Enables easy access to offshore installations
- Compact, environmentally adapted onshore converter station design
- Facilitates grid connections in remote areas without need for grid reinforcements
- Health Safety and Environment (HSE) impact
 - Removal of offshore gas turbines will significantly reduce the risks and makes the facility inherently safer
 - Enclosed equipment gives efficient noise suppression
- Low operation and maintenance costs



Troll platform (the HVDC Light module is seen in the middle)

Scope of supply

- Feasibility studies to facilitate customer's business development process, including optimization of the entire project/system
- System analysis and network studies
- Engineering and project management
- State of the art HVDC Light® technology including turnkey supply of
 - Converter stations with compact, light-weight offshore module design
 - Light-weight, oil-free cables
- Quality assurance ensures the customer systems, operations, and maintenance staff receives proper training and documentation for a smooth transfer at Take Over
- Maintenance Support with short response thanks to remote diagnostics from supplier home base

ABB – pioneers of HVDC

ABB pioneered HVDC technology 50 years ago when the company built the world's first commercial high-voltage direct current transmission link in Sweden. Building on this world first, ABB has maintained its undisputed world leadership in HVDC transmission technology. We have supported our customers with more than 55 HVDC projects around the world providing more than 45, 000 MW of transmission capacity. And since 1999, with its new HVDC Light® technology, ABB is once again building a technological lead with solutions to customers' transmission challenges around the world.

Continuing to meet these needs will maintain ABB's leadership position.

For reference projects, please see the reverse side. More information can be found on www.abb.com/hvdc

Reference list - HVDC Light®

PROJECT	In service	Power MW	DC voltage kV	Station location and AC grid	Transmission distance	Application	Customer
HÄLLSJÖN Sweden	1997	3	±10	Hällsjön, 10 kV Grängesberg, 10 kV	10 km (overhead)	Pilot system	VB Elnät, Sweden
GOTLAND Sweden	1999	50	±80	Näs, 77 kV Bäcks, 77 kV	70 km	Wind, Undergrounding	GEAB, Sweden
DIRECTLINK Australia	2000	3 x 60	±80	Terranora, 110 kV Mullumbimby, 132 kV	65 km	Undergrounding	TransEnergy, USA North Power, Australia
TJÆREBORG Denmark	2000	7,2	±9	Enge, 10,5 kV Tjaereborg, 10,5 kV	4,4 km	Wind, Undergrounding	Eltra, Denmark
EAGLE PASS USA	2000	36	±15.9	Eagle Pass, 138 kV (both sides)	NA (back-to-back)	Grid reliability	AEP, USA
CROSS SOUND USA	2002	330	±150	New Haven, 345 kV Shoreham, 138 kV	40 km	Grid reliability	TransEnergie US, USA
MURRAYLINK Australia	2002	220	±150	Berri, 132 kV Red Cliffs, 220 kV	180 km	Undergrounding	TransEnergie US, USA
TROLL A Norway	2005	2 x 41	±60	Troll A, 56 kV Kollsnes, 132 kV	67 km	Offshore	Statoil, Norway
ESTLINK Estonia - Finland	2006	350	±150	Espoo, 400 kV Harku, 330 kV	105 km	Grid reliability, Undergrounding	Nordic Energy Link AS, Estonia
VALHALL Norway	2010	78	150	Lista, 300 kV Valhall, 11 kV	292 km	Offshore	BP, Norway
NORD E.ON 1 Germany	2009	400	±150	Diele, 380 kV Borkum 2, 170 kV	203 km	Offshore wind	E.ON Netz Germany
Caprivi Link Namibia	2009	300	350	Zambezi, 330 kV Gerus, 400 kV	970 km (overhead)	Grid reliability	NamPower Namibia

More information regarding each specific project can be found on
www.abb.com/hvdc



ABB AB
Grid Systems - HVDC
 SE-771 80 Ludvika, Sweden
 Tel: +46 240 78 20 00
 Fax: +46 240 61 11 59
www.abb.com/hvdc