ABB Power Cables Service

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Turnkey Cable Repairs
Three Reference Cases
ABB Power Cables Service – Success Repair Story
Wind Farm, United Kingdom, March 2012

Project description
- Problem: Physical damage of Export Cable, October 2011
- Cable type: Prysmian 132 kV AC, 300 MW, Installed in 2011
- Contract: ABB was awarded in February 2012

Scope of supply
- Turn-key delivery
  - Full mobilization of a flat-top barge
  - Engineering and preparations
  - Laying of spare cable
  - Jointing and testing
  - ABB Kabeldon repair material

Key challenges
- Area with high tidal current
- Operation required repair of underwater cable close to windmills
- Repair of non-ABB cable
- Complete mobilization of a barge to a purpose build cable repair (full “flat-top mobilization”)
- ABB rewarded with contract after four months of non-conducive repair operation

Successful repair
- Full flat-top mobilization in just four weeks
- Repair successfully handled and handed over to customer at April 13, 2012
- Zero accidents
- Compliance with the highest ABB HSE standard

Customer is very satisfied – ABB has proven their ability to succeed, even where others failed
ABB Power Cables Service – Success Repair Story
Gotland Interconnector, Sweden, June 2012

Project description
- Customer: Vattenfall Eldistribution AB
- Problem: Physical damage in interconnector in May 2012
- Cable: ABB cable, 150 kV HVCD, 130MW, Installed in 1988
- Contract: ABB was rewarded in June 2012

Key challenges
- Fast mobilization with customized vessel
- Complex offshore conditions of underwater cable
- Management of two parallel large cable repair projects

Scope of supply
- Turn-key delivery
  - Mobilization of a repair vessel
  - Fault location
  - Cut and cap
  - Spare cable collection and transport
  - Cable recovery
  - Laying of spare cable
  - ABB Kabeldon repair material
  - Jointing and testing

Successful repair
- Customer was prepared for a longer outage time than ABB needed for the repair
- Successful repair finished and hand over to customer at July 2, 2012
- Zero accidents
- Fulfill the highest ABB HSE standard by which the customer was impressed

ABB has proven to be world class in complex offshore cable repair operations – customer wants to secure 24/7 access to the professional repair service by negotiating an ABB Service Agreement
ABB Power Cables Service – Success Repair Story
Fenno-Skan Interconnector, Finland, March 2013

Project description
- Customer: Fingrid Oyj
- Problem: Internal damage in HVDC Cable, February 2013
- Cable type: Nexans 400 kV MI DC, 500 MW, Installed in 1988
- Contract: ABB was awarded in March 2012

Scope of supply
- Turn-key delivery
  - Mobilization of Cable Lay Vessel (CLV) Topaz Installer
  - Engineering and preparations
  - Spare cable collection and transport
  - Cable recovery
  - Laying of spare cable
  - Jointing and testing
  - ABB repair material

Key challenges
- Record breaking cold and long Finnish winter
- Cable heat treatment during transport and repair
- Operation in between drifting ice
- Repair of non-ABB MI-cable

Successful repair
- Full mobilization in only 10 days
- Repair successfully handled and hand over to customer at April 11, 2013, just 31 days after signing the contract
- Compliance with the highest ABB HSE standard

ABB has again proven to be world class in complex offshore cable repair operations
Cable fault in Fenno-Skan 1 HVDC connection repaired

4/12/2013 11:00 AM - Current News, Electricity Market, Power System

The fault in the Fenno-Skan 1 high-voltage direct current submarine cable has been repaired. The damaged portion of the cable, 220 metres, was replaced with a new section. The cable repair was conducted swiftly thanks to the favourable weather conditions of the past few days. The transmission capacity of Fenno-Skan 1 was made available to the Elbas market in the morning of Friday 12 April 2013 and to the Elspot market from Saturday 13 April.

Fenno-Skan 1, the 550 megawatt HVDC connection between Finland and Sweden, tripped from the grid on Tuesday evening 12 April at 19.42. The failure location was on the coast of Finland close to Riihivanni. The cable was damaged due to an internal failure. The investigation into the cause of the failure continues.
ABB Power Cables Service
Service Agreement – A proactive solution

- On call 24/7 support and telephone support
- Preventive maintenance
  Annual visual inspection including report
- Storage and maintenance of spare parts
  Contractor to maintain and update spare material, equipment and cables at clients storage
- Fault location & Cut and Seal
  Fault location equipment and specialist on stand-by (24/7); Testing procedures and QHSE plans
- Repair work
  Specialists and equipment stand-by (24/7); Documentation; Jointing procedures and QHSE plans
- Marine Engineering
  Cable handling equipment stand-by (24/7); documentation and procedures; Broker agreement for suitable vessel of opportunity
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