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The Murraylink Project – first commercial 150 kV extruded HVDC cable system

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The first commercial HVDC (High Voltage Direct Current) cable system using an extruded dielectric was installed on the Swedish Island of Gotland in 1999. Since that time, three HVDC projects with extruded dielectric cable systems have been successfully commissioned, bringing the number of installed cable kilometers of this type of cable to about 1000 kms. Together these recent projects represent some remarkable landmarks for HVDC cables:

- the longest extruded cable system – Murraylink
- the first commercial ±150 kV HVDC systems with extruded insulation – Murraylink and Cross Sound Cable

In 2002 the Murraylink interconnector project was commissioned in Australia. Murraylink is an Independent Transmission Project (ITP) with the investor-owned link designed for power trading in either direction between the states of South Australia and Victoria. It is also the longest underground cable link ever constructed with a route length between converter stations of 177 kms. Murraylink utilises extruded d.c. cables and HVDC-Light converter technology and is designed for a 150 kV 200 MW rating. This is a major step forward in comparison to the previous 80 kV ratings for commercial extruded d.c. cables.

The cable system was installed with unprecedented speed. Adhering to strict environmental requirements the installation was awarded the 2002 Case EARTH Award for Environmental Excellence. This demonstrates a cable installation for a long transmission distance is indeed efficient and has a minimal environmental impact during installation, and no remaining environmental impact. This paper describes the design and testing of the extruded d.c. transmission cables and accessories. Also, methods of installations are reported.