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Evaluation of important aspects for the long term service performance of axially and radially water tight XLPE

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The aim of this paper is to identify different aspects of the new axially and radially water tight XLPE cable construction.

In Norway a major part of all new installed 12 and 24 kV XLPE cables is water tight. These cable constructions are supposed to give long expected life. Different pre-stresses applied to the cables like thermal stress on the metallic screen, short circuits, corrosion of the Al-laminate, and the cable "as delivered" are studied in this work.

Comparisons of water tight cable constructions and "conventional" cable constructions are performed within a two years ageing time of the cables. The tests comprise cables both with and without mechanical damages to the cable sheaths.

In order to obtain long expected service life for the cables sheath testing is discussed. This uncomplicated test is to be described and the positive long term effects are addressed.

The project resulted in changes of the Norwegian water tight XLPE cable constructions. The background of these changes will be discussed in the paper.