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Sumitomo Electric Industries, Ltd.

Sumitomo Electric Completes Type Approval Test for 525kV DC Gas Insulated Switchgear Interface with Siemens Energy and Südkabel

Sumitomo Electric Industries, Ltd. is pleased to announce the successful completion of the world's first type approval test on its 525 kV direct-current (DC) cable system with a DC gas insulated switchgear (DC GIS) interface in accordance with CIGRE*¹ TB496 under the technical collaboration with Siemens Energy and German cable supplier Südkabel GmbH.



With more renewable energy penetration, multi-terminal DC interconnectors will be a desirable option for robust power networks. DC GIS provide a compact solution, especially for connecting high-voltage direct-current (HVDC) cable lines to offshore converter platforms and onshore transition stations.

Sumitomo Electric has devised a 525 kV DC cross-linked polyethylene (XLPE) cable*², while Siemens Energy has developed a DC GIS component. These companies decided to carry out a collaborative type approval test at Mannheim laboratories of KEMA Labs, a CESI

brand in Germany. Südkabel supplied its DC XLPE cable using Sumitomo Electric's DC XLPE compound materials and connected it to Sumitomo Electric's XLPE cable and joints. These cables were plugged into Siemens' DC GIS compartment via DC GIS

terminations.

The collaborative test results showed the conformity of the 525 kV DC cable system and the DC GIS interface in accordance with CIGRE TB496. Südkabel's cables were also proved to have compatibility to Sumitomo Electric's cable, while subsequent destructive tests, including polarity reversal condition tests, showed the both cable systems have sufficient design margins up to $U_0 = 640$ kV level.

Sumitomo Electric has been leading the international power cable industry with its HVDC XLPE insulation technology. In 2019, Sumitomo Electric was commissioned for the NEMO project, connecting UK and Belgium with 400 kV HVDC cable system. Sumitomo Electric has also secured the Corridor A-Nord Project, laying 525 kV HVDC underground cable in Germany.

*1 XLPE stands for cross-linked polyethylene. Conventionally, mass impregnated cables using highly viscous insulation oil have been utilised for HVDC projects. In recent years, XLPE insulated cables have been commonly adopted by the market due to their high allowable operating temperature and growing environmental concerns.

*2 CIGRE, established in 1921 in Paris, France, is a global community committed to the collaborative development and sharing of power system expertise. The community features thousands of professionals from over 90 countries and 1250 member organisations, including some of the world's leading experts.

About Sumitomo Electric Industries, Ltd.

Sumitomo Electric Industries, Ltd. was established in 1897. Since then, based on electric wire and cable manufacturing technologies, we have conducted our original research and development and strenuously strived for the establishment of new businesses. These efforts have allowed us to create new products and new technologies, as well as diversify our business fields. Currently, we operate our businesses on a global basis in the following five segments: Automotive; Info-communications; Electronics; Environment & Energy; and Industrial Materials. We have been contributing to society through environmental friendly and fair business activities globally. Further information is

available here <http://global-sei.com/>.

About Südkabel GmbH

Südkabel GmbH, based in Mannheim, specializes in the manufacture of Medium-voltage, High-voltage and Extra High-Voltage XLPE insulated power cables and cable accessories, as well as in installation and services. Founded in 1898 Südkabel is one of the most experienced supplier of cable systems up to 525kV including planning and engineering with a track record of more than 1500km 400/500kV XLPE cables and more than 3000 accessories installed worldwide.

Reference:

The Leading Company for High Voltage Cable and Overhead Conductor

<https://global-sei.com/power-cable-business/>

Sumitomo Electric's Website

<https://sumitomoelectric.com/>

Press release May 11, 2020

Sumitomo Electric secures >€500M "Corridor A-Nord" High Voltage DC Underground Cable Project in Germany which sets new innovative benchmarks in the HVDC Industry
<https://global-sei.com/company/press/2020/prs043.pdf>