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JICABLE'07
Rapporteur's Session Report

B.2 SESSION : LV / MV SYSTEMS (2)

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This session, which included six papers, was dedicated to LV and MV cable systems design.
On the base of service experiences, the tendency is to present new optimized LV/MV systems designs with improved reliability with lower impact on environment and where overall costs are still the key driver.

Paper B.2.1 presented high performances of new compounds for MV cables insulation applications : Ethylene Alkene polymers (EAM) combined with Hindered Amine Light Stabilizer provide more stabilized electrical and thermal properties to cable insulations, and are much more environmentally benign during their production and their transformation.

Paper B.2.2. dealt with the design of a new LV system concept for LV underground distribution in Spain. Maintaining the cost respect to current solution, a new Halogen Free Fire Retardant sheath compound grants the possibility to the cable to improve its mechanical performances and its resistance to external aggressions of the cable, and reduce its impact on environment. And pre-insulated connections type accessories complete this system with simplified and safe installation procedures which lead to more reliable connections.

With the same concern of reducing the environmental impact of LV cables and keeping costs under control, the authors of paper B.2.3 presented a new LV cable design with a lead free solid aluminium neutral conductor. The study focused on checking the lifespan of such new design, especially testing the impact of corrosion by defining a new investigation test and comparing results with the current NF C 33-210 cable design.

Paper B.2.4 dealt with a new pulling-cable software TIRFLEX : it completes the classic Rifenburg-Smith model by taking into account the bending effects on the cable during its installation in a new updated software, in order to prevent against underestimating pulling forces and then against unexpected damages which could lead to a diminution of the expected cable lifespan.

Paper B.2.5 presents an overview regarding service experiences on different cable technologies (impregnated paper cable, thermoplastic insulated cables, XLPE insulated cables) of the MV Polish network : XLPE insulated cables have gained an acceptance in many utilities, and the last improvements in very high quality XLPE insulation made by cable manufacturers reinforce this tendency.

Based on similar twenty years European service experiences, the paper B.2.6. presented the results of the European Project EuroMVCable. On the base of a huge number of possible cable designs in Europe and on the base of many national requirements disparities, the authors presented the designs and performances of four possible harmonized cable solutions with optimized insulation and outersheath, and some proposed compliance procedures.