

High safety and low maintenance aerial cable system withstanding extreme weather

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Today, we are completely dependent on having access to electrical power. Outages on the power supply can quickly have severe consequences. And it will be expensive for the entire community.

In 2012, the costs were estimated at nearly 1 billion SEK almost 100 million Euro - in Sweden alone.

A system has been developed in response to utilities demands to withstand extreme weather conditions without power interruption. The unique design can handle e.g. ice loads, storms and snow-laden trees. The self-supporting conductors take up the bulk of the tensile stress. The forces from a falling tree are propelled through the cable sheath and insulation into the supporting conductor, without damaging the cable. This reduces repair down time in comparison with other systems - resulting in less repair call-outs and smooth maintenance.



Fig 1 Snow covered heavy branches on live cable

The robust construction of the fully insulated cable system offers several significant savings by greater freedom and flexibility of line routing. There is no risk for power outage caused by falling trees or birds causing short circuit as compared to bare lines. Risks of direct lightning strikes are also greatly reduced compared with bare wire lines, with the fully insulated cable not attracting lightning strikes, and indirect strikes causing no damage to cables. There are also reduced lightning problems at OHL/underground cable transitions.

Other benefits of the fully insulated cable system are rare power cuts as a result of broken line wires, and environmental hazards such as sand, salt and conducting dust (may cause fires). Conventional bare line systems are prone to short circuits due to clashing conductors, whereas the fully insulated system comprises of one fully insulated cable, and therefore completely eliminates this problem. Tests on Shetland islands and installations in Norway have proven that galloping and vibration not to be a problem.

As a result of the above, fewer repair call-outs are required for the fully insulated cable system, and there is a reduced number of difficult repair and clearing line jobs. Emergency call out are not needed, Clearing of lines can be performed during normal working hours.



Fig 2 Heavy tree on live cable



Fig 3 Trees on live cable after storm