The SuperLink Cable Project - Development and Impacts of a Superconducting Power Cable in a 110kV Distribution Network

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***Abstract*—A major challenge nowadays of the 110 kV network in Munich is the off-peak times within the city, when the power generated at the southern substation should not only be available for Munich, but in an additional function exported to external networks. The existing lines are not enough to transport the produced energy from south to the northern and southern substations. To improve the situation, improve the security of supply and create efficient connections, a 12 km long Superconducting power cable connecting the load center in the south to the northern main substation is envisioned. Before integrating such cable in the network, however, a deep investigation of its effects in the network must be carried out. Therefore, load flow calculations were performed considering the network operation under different load and feeding scenarios. In order to evaluate the results, the loading of the lines, as well as voltage stability and short circuit current levels were analyzed. It was found that the SuperLink cable contributes not only to the relief of overloaded cables but also to the overall decrease of the losses in the network.**

***Keywords (Index Terms)*— High Temperature Superconductor Power Cable, Network Load**

Figure 1. SuperLink Cable Design.