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Status of Coated Conductor Development

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The fundamental requirement for electric power application of high temperature superconducting (HTS) materials is a long, strong, flexible, & affordable HTS wire capable of carrying large currents in magnetic fields at high temperature. The HTS coated conductor, also called the 2nd generation HTS wire, is expected to be the one that can meet the requirements. Coated conductor is based on YBCO material and consists of epitaxial multi-layer oxide thin films deposited on flexible metal tape. The bi-axial texture of the YBCO layer plays a critical role in the current carrying capability of the wire. Different approaches --- RABiTS, IBAD, ISD etc. --- are used for the texture of the superconducting layer. Most of the thin film processing are being used to make buffer layers and superconducitng layers. Long-length (> 10m) results of coated conductor have been reported since 2002, and the longest one is currently 100m. There is a large expectation that after 10+ years of R & D, coated conductor long and good enough for practical application will soon be available. A brief summary of the past, current status, future plans of the coated conductor will be presented together with the recent results of coated conductor program in Korea.

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