

X. THE NEW PROJECT: TECHNOLOGICAL DEVELOPMENT OF YTTRIUM-BASED SUPERCONDUCTING POWER EQUIPMENT

This project is to develop in five years, from 2008 to 2012, new prototype power systems close to practical application and incorporating the results of basic technology development in the past 20 years. The development targets are:

- (a) Basic technology of SMES⁴ with an energy of 2GJ for the stabilization of power systems,
- (b) Superconducting power cables for high-voltage (275 KV) and high current (66 KV) transmission systems, and also
- (c) Superconducting transformers.

Artist's concept illustrations of 2 GJ class SMES, of power cables, and a transformer are shown in Figures 13-15. It is, of course, necessary to develop low-cost systems in this project.

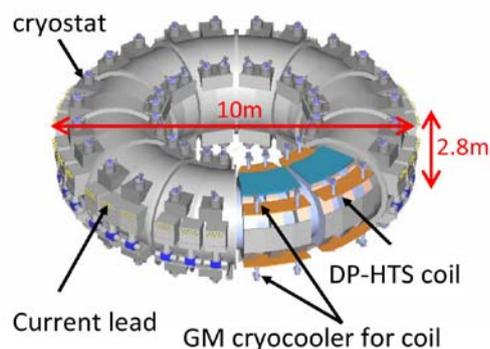


Fig.13. External view of the designed 2 GJ class SMES.

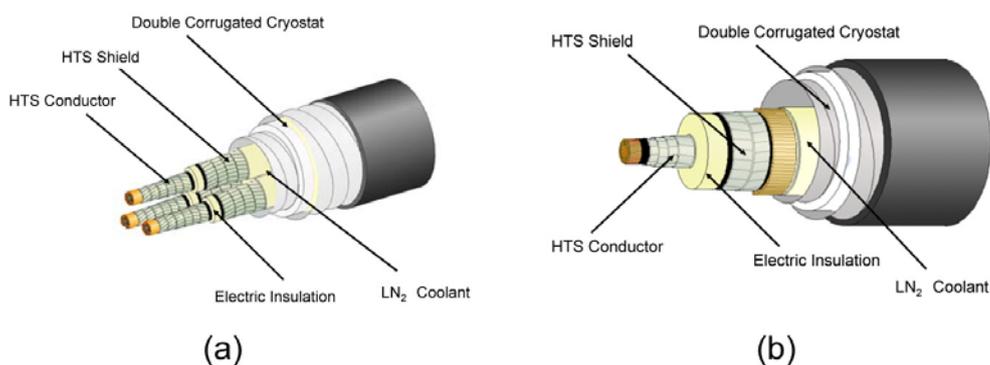


Fig.14. Superconducting power cables, (a) three-phase cable and (b) single-phase cable.

⁴ SMES in the acronym of superconducting magnetic energy storage.

