

Electrical Powering Strategy of LHC. First Design Study, P. PROUDLOCK, CERN, Geneva - Superconducting accelerators, and in particular the LHC, require detailed analysis of the electrical powering due to the integrated nature of these machines. The situation is made more difficult in LHC where the maximum use needs to be made of the existing infrastructure, notably the a.c. electrical distribution and the underground excavations of LEP. This, coupled with the dynamic performance of the main dipole magnets, the quench protection requirements and the needs of the accelerator physics, have meant that new powering techniques, as well as tighter power converter performance specifications, will be required. A description of the powering system of LHC is given along with the reasons for adopting certain solutions. The static and dynamic requirements of the machine are also discussed and the first ideas for solving some of these problems are presented. In all the LHC will use about 1500 power converters able to supply approximately 1750 kA in total. Some of the on-going studies to achieve a better optimization of the powering system are also discussed.