



Contribution ID: 30

Type: Oral presentation (by invitation only)

Power Converters R&D –From DC Distribution to Energy Storage Systems

Wednesday 1 June 2022 12:00 (30 minutes)

Power converters are needed to supply all magnets and RF systems for the FCC-ee and FCC-hh. This needs to consider the required accelerator controllability and precision, as well as the electrical AC network power quality. The design procedure needs to minimise the total investment and operational costs (losses, availability, etc.). Aspects such as losses in underground areas, power converters and energy storage systems volumes and locations, and cable lengths, needs to be considered in a holistic approach.

The talk provides a summary of the initial works carried out, and in particular, presents the first ideas of a DC distribution concept, a draft and non-optimized FCC-ee power converters layout, and an analysis on energy storage systems suitable for the FCC-ee booster and FCC-hh.

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Session Classification: Technology

Track Classification: Technology R&D