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LHC as 3.3 TeV HEB

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The transfer and injection of the high brightness 3.3 TeV proton beams from the High Energy Booster (HEB) to the FCC presents several interesting challenges. In the new baseline concept one straight section of 1.4 km length is dedicated to house one injection system and a side-experiment. Due to the limited amount of space, a special injection and collision optics were designed and optimized to provide a minimal beta* to the experiment, respecting the requirements of the injection system. The high stored beam energy during beam transfer will influence the machine protection considerations concerning the functional design of the transfer and injection, for instance in the amount of bunches transferred, the kicker rise and fall times and the protection of the experimental detector located downstream of the injection point.

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