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Upgrade of the PSB to ISOLDE beam transfer line to facilitate an increase in proton driver energy

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Following the successful completion of the LHC Injectors Upgrade (LIU) project, since 2021 the Proton Synchrotron (PS) Booster has served the LHC injector chain with protons at an increased kinetic energy of over 2 GeV. An upgrade of the ISOLDE (Isotope Separator On-Line DEvice) facility has long been considered to produce radioactive ion beams with a higher energy proton driver beam. A Consolidation and Improvements programme is presently underway to maintain ISOLDE's position as a world-leading ISOL facility in the decades to come, with activities planned during the upcoming Long Shutdown 3 (LS3) (2026 - 28) and beyond. This contribution details a study to upgrade the beam line to operate between 1.4 and 2 GeV, and to increase the power of the proton driver in the future, assuming the replacement of the two beam dumps behind the facility's production targets.

Footnotes

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