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## **ISOLDE Beam Dumps Replacement and Sustainability (IBDRS), a step to 2 GeV and 6 uA at ISOLDE**

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The ISOLDE facility at CERN is pivotal in the field of Radioactive Ion Beams (RIBs) research facilities. Renowned globally for its significant contributions, the facility now faces the challenge of aging infrastructure dating from the early 1990s. To address this, an ISOLDE Improvement Program (IIP) has been launched with the aim of consolidating the facility enhancing its operational efficiency and scientific capabilities. Targeted improvements are scheduled for implementation during the Long Shutdown 3 (LS3) and later.

The ISOLDE Beam Dumps Replacement and Sustainability (IBDRS) project is a core component of this ambitious program. The project focuses on the upgrade of the beam dumps and shielding associated with the GPS and HRS target stations to accommodate operation with higher beam power in the future. The new beam dump systems are designed to safely handle beam energies up to 2 GeV and an averaged beam intensity of 6 uA, compared to the current nominal beam parameters of 1.4 GeV and 2 uA. The higher beam energy and intensity is considered for routine operation of the facility after the modification of the proton beam line to ISOLDE (foreseen during LS3) and the upgrades of the target stations during LS4.

The IBDRS project will be executed in 3 phases:

- Excavation of the earth above the target area and removal of the shielding blocks, including two uncooled iron blocks that have absorbed most of the beam delivered to ISOLDE since 1992.
- Construction of a new underground technical building above the ISOLDE target area
- Installation of two water-cooled dumps compatible with 2 GeV and 6 uA operation surrounded by a massive iron shielding within the new technical building

In addition to ensuring the long-term radiation safety of the ISOLDE facility, this major upgrade will create new opportunities and keep ISOLDE at the forefront in the fields of nuclear physics research.

This contribution will outline the strategic plan to complete this major upgrade within two years during LS3.

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