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What is the maximum reasonable energy?

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In 2008 all the LHC main dipole circuits were trained to 5 TeV, two sectors to 6 TeV, and one sector was pushed up to 6.6 TeV. In the 5-6 TeV range, a few quenches were needed to retrain the LHC dipoles, and none for the quadrupoles. On the other hand, in the 6-7 TeV range a larger than expected number of quenches was observed in the main dipoles. Using this limited set of data, tentative estimates were given to guess the number of quenches needed to reach nominal energy. After three years, the only additional experimental data are the retraining of the magnets individually tested at SM18, either coming from the spares or from the 3-4 sector. After presenting this additional information, we will consider the different scenarios that can be envisaged to train the LHC main magnets after the Long Shut-down 1, the expected energy, the impact on the commissioning time and the associated risk.

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